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A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS. GLEANINGSIN THE BEE CULTURE ILLUSTRATED SEMI-MONTHLY Published by THE A. I. ROOT CO. \$1.00 PER YEAR MEDINA, OHIO.

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THE EGGS of choice queens form an article of commerce to a considerable extent in Switzerland.—*Bienen-Vater*.

IT SEEMS from the *British Bee Journal* that our British cousins are using tinted glass to measure the color of extracted honey.

THE *Centralblatt* says that on the Lueneburg heath they usually put in one apiary not more than 120 colonies at a distance of at least $\frac{1}{2}$ mile from the nearest apiary. How many localities in this country would stand such crowding?

SWEET CLOVER is a good example of a plant that yields both nectar and pollen, says R. C. Aikin, in *Progressive*. Locality again. I've many a time watched bees at work on sweet clover, to find the color of sweet-clover pollen, without seeing any.

A BRIGHT SUGGESTION comes from F. L. Thompson, in *Progressive*. In order to have outside sections finished promptly, or, rather, to have no outside sections, put two very thin permanent combs, one on each side of the super. Might it not save most of the putting-back of sections to be finished?

THE TIME FOR CLIPPING queens in this locality is as follows: at the spring overhauling, about the last of April, *every queen is seen*, and those with whole wings clipped. About all of these will be superseding queens raised the previous year near the close of the harvest. Through the rest of the season every queen is clipped as soon as she is known to be laying.

ONE REASON why double-tier 24-lb. cases are preferred to single-tier 12-lbs. is that it costs less for one of the former than for two of the latter. Another reason is that the double tiers make a better show. In a pile of single tiers, 55 per cent of the showing surface is honey, and 64 per cent is honey in a pile of double-tiers. You see a single bar in the middle of the double-tier takes the place

of two bars, a bottom, and a cover. But I never had the upper sections rest directly on the lower. I finally gave up double tiers because they were odd goods.

C. P. DADANT was received in the most cordial manner across the ocean, according to an editorial in *Revue Internationale*, which speaks of him as "the son of our venerated master, Charles Dadant." We've no reason to be ashamed of our Camille. [Yes, the President of the National Bee-keepers' Association gave C. P. Dadant a great send-off in the form of a letter of credentials from our Association to the International Bee-keepers' Congress at Paris. Through the Dadants the bee-keepers of America have a very close connection with the bee-keepers of France.—ED.]

AFTER READING the footnote to that Straw about "ragged" hives, p. 870, a certain person said to me, "You tell Ernest that, notwithstanding new hives, we still use rags, and will continue to do so with such hive-covers as we get from Medina." [Now look here, doctor; don't you remember that you were instructed to tear that leaf out so the women-folks would not see it? But, say: suppose you send to us by express two covers plugged up with rags, and I'll send you two new ones in exchange. Is it possible that those same women-folks have been nailing up those covers? I want to see if I can discover the evidences of a woman's hammering, you know, and that is why I ask for the covers.—ED.]

EDITOR HUTCHINSON, asked if he would breed from a hybrid queen whose bees stored four times as much as those of the best Italian, replies, "Certainly I would. Such a colony might be the beginning of a most valuable strain." Right. I'd like to breed from purest and most beautiful stock; but purity and beauty must give way to best performance. [I agree with this with one exception: That a cross between two races will have a decided tendency to sport back toward one or the other parentage, with the result that possibly the very characteristic that we desire to preserve may be lost, and the very one we would repress is brought into prominence. If

we can get the desirable qualities in a distinct pure blood of any race, then our chances of perpetuating those qualities will be very much greater.—ED.]

ON GOOD ROADS in a level country, the side shake of a wagon is more than the forward or back jerking, so hives should be loaded with combs pointing to the wheels. I can't say about other places, for I never tried them. [Then from your standpoint the directions that we have sent out for years are incorrect so far as they relate to the manner of loading combs in a wagon. Now, then, let us hear from others. If we can get a consensus of opinion to the effect that combs should be loaded crosswise of the wagon, then we will change our directions.—ED.]

ON ACCOUNT of moving, Editor Hutchinson is going to give up bees. Makes me feel lonesome to think of it, and I wish he'd move somewhere else with more room. [One of the strong features of the *Review* is that its editor has been keeping in close touch with the bees. Even if he does not have any around home, I hope he will still keep an out-yard. Some one has remarked that he could always tell by the writings of a man whether he was in the habit of having his fingers daubed with propolis—that he could even *smell* it through the printed page. Whether this is true or not, I have thought that my brother-editor was in the habit of getting his inspiration direct from his bees. I didn't exactly smell any bee-glue on the pages of my *Review* numbers, but somehow they gave the impression that its editor knew from practical experience what he was talking about.—ED.]

REFERRING to the statement that some comb built on foundation is lighter than natural drone comb, Editor Hutchinson says: "It is not entirely a question of quantity of material, but quality also has a bearing. Comb, after it is melted, becomes wax. It is no longer flaky and brittle; but becomes tough and leathery." One of the things I know, W. Z., is that in this locality new comb is not brittle; the newer, the less brittle. I'm so sure you're wrong in that, that it shakes my faith in the rest of your statement. [It has always seemed to me that wax is wax, whether in the comb or cake; and even if there were a difference, methinks a human being, if he were blindfolded, and given a series of samples of natural-built comb filled with honey, and another series of combs built off from the modern extra-thin foundation, also filled, would be unable to detect the difference in the eating. There is considerable variation in natural-built comb, and an equal variation in that built off from foundation. In a lot of samples one might be very much lighter than the other.—ED.]

ENCOURAGING is that answer of Harry Lathrop, p. 872. It does seem that hindering bees from swarming for a series of years has in some way something to do with breaking up the habit. No, Harry, never a bit was I poking fun. When I scent a chance for information about non-swarming, you may al-

ways count I'm in dead earnest. [I believe it is a fact that we can breed out to a great extent the swarming propensity in bees. If that be true, let us be sure to incorporate that characteristic in our breeding stock of honey-queens. I do not like to be harping continually against color; but it is morally certain that we can not get all desirable traits in one queen. We must make the choice of the most important, breed for these, and let the less important go; and about the least important of all characteristics is color. We want, first of all, bees that can get the honey; and as a matter of convenience we wish those that will not swarm. Hardiness or good wintering qualities are important. Of the less important characteristics I would mention gentleness of stock, non-propolizing qualities, and, last of all, color.—ED.]

A HARD THING it is to know when to take bees in cellar. Our warm fall weather had a sudden chill, bringing it down to 22° Nov. 8. If now I rushed the bees into the cellar, and then two or three weeks later there came a warm spell, the bees would be the worse for the unnecessary confinement. On the other hand, if no days for flying should come later, as happened one year, and the bees were taken in the last of the month without any flight, the case would be still worse. I decided to take the latter risk, and shall feel somewhat uneasy until a warm day comes—if it comes. I envy you outdoor people.—Nov. 19. Bees flew to-day, and in they go to-morrow. [I used to think that, if I lived in Marengo, I would winter outdoors; but after I had visited you one winter, and experienced your cold bracing air, I came to the conclusion that perhaps outdoor bees would not stand it. There is no use talking; the mode of wintering is or should be dependent on the locality. There was a time when some tried to winter indoors in climates that were too warm; and it is also true that some made an attempt to winter outdoors in localities where it was too cold; but both failed to a very great extent. But now much better results in wintering are secured because locality decides the method that should be used.—ED.]

W. T. STEPHENSON reports, in *Review*, comb 12 years old, and the small size of the cells is plainly perceptible. I think most of my combs are older than that; and the extra thickness of the septum is plainly perceptible, but not the smaller diameter of the cells. Mr. Editor, how does that quarter-century-old comb measure? [Some time ago I received a package of comb without a word of explanation from you, and have been wondering ever since what you sent it for. Now it is all plain. Well, I have just examined it. There are just as many cells to the square inch, of course; but the *bottoms* of the cells have from eight to ten layers of cocoons, while the *sides* of the cells have only one and at most two layers. This would seem to indicate that, when the *diameter* of the cells gets too small, the bees remove the excess of cocoon walls, but leave the bottoms until they get a packing of ten layers. This reduced depth can,

of course, be corrected by adding more wax to the ends of the cells. Now let's see if this is true. There, I've stopped to measure, and find that the thickness of the comb is from one inch to one and one-sixteenth thick. Thickness of *new* brood-comb is about seven-eighths; and, if so, this 25-year-old comb has been thickened from two to three sixteenths because of the packing of 9 and 10 layers of cocoons in the bottoms of the cells. The other fact seems to be that the diameter of the cells has not been reduced all these years. If this is true with other old combs, then worker bees in a 25-year-old comb will be just as large as in one six months old. This I am inclined to believe correct, because nature would surely make some provision for the excess of wall-linings.—Ed.]



War's fierce growlings still are heard;
Disarmament's an idle word;
Eastern lands run red with blood
In a never ceasing flood.



World-shaking events in beedom are few and far between. The matter of getting bees with tongues long enough to work on red clover is rapidly coming to the front and receiving the attention it deserves. The fact that the bees and the clover already meet in a few instances is enough to make all feel sanguine that the desired end is at the door. Judging from analogy in other cases, it is not too much to say that the benefit of such a strain of bees would not be so great to the bee-keeper as to the farmer, as the more perfect fertilization of the red clover might render it so much more productive that the additional increase in clover would more than equal the gain in honey. No stone should be left unturned in achieving this result, which certainly has no reason against it, but so much in its favor.



THE AGRICULTURAL GAZETTE.

This journal, published in New South Wales, comes to this office regularly, and it is a welcome visitor. It is edited by W. H. Clarke, under the direction of the Secretary for Mines and Agriculture. It is devoted to every branch of industry relating to the earth, one of the most important being that of apiculture, under the direction of Mr. Albert Gale. Some of the more interesting topics are: Raising ostriches in Egypt; the Jersey cow; lemon culture in Italy; wheat and potato culture, and a hundred others. Americans themselves would be surprised to see what is going on in our own country. For instance, in speaking of seedless oranges we learn that "the industry has grown till no one thinks of planting seedling oranges, and

tens of thousands of seedling trees have been budded into navel orange-trees which have yielded net profits of from \$250 to \$300 an acre.

"Riverside, Cal., has grown, in twenty years, from a hamlet of less than 30 American inhabitants to a town of 14,000. The average annual shipments of oranges from Riverside are 1,600,000 boxes." This all came from two unpromising trees brought from South America less than 30 years ago. The people of Riverside are urging that the two trees which were the source of this prosperity be removed to a public park, in order that they be kept for the next generation as an object-lesson. No visitor is allowed to take any flower or fruit into the orchards for fear of the scale. Riverside is the greatest orange-producing locality in the world, 16,000 acres of land being devoted to it. What a paradise for the bee-keeper! Perhaps the editor will give us some personal notes from these great orchards next spring.



BEE-KEEPERS' REVIEW.

Mr. Hutchinson's journal is always uniformly good. It never falls below the line of what might be called a little extra. The issue for October starts out with an editorial article on wintering in clamps, nicely illustrated. The hives are buried till the tops are just even with the ground, on a hillside or a gentle slope. The hives rest on rails. They are then covered with straw and other rubbish, then with rails, and finally with earth and old vines and straw. Perhaps friend Hutchinson will lend us that cut—hope so. The photos were made by himself, and in photography he is away up, as is well known. Relative to these clamps, the editor says:

I don't remember where I first got the idea, but I do remember having some correspondence on the subject with Mr. C. J. Robinson, of Richford, N. Y. He very persistently urged me to give no ventilation. He asserted that the bees would winter better with no ventilation—that the hibernation would be more perfect than in a "sea of oxygen." I was very loath to take this advice; and it was with many misgivings that I finally ventured to risk six colonies with no ventilation except that which would come through the earth. At the same time I buried a dozen other colonies, giving them ventilation by means of a four-inch tube laid along the bottom of the trench, and extending out into the outer air. There was also a similar tube at the top, extending from the bottom of the pit up through the earth some three or four feet. I remember that I had a thermometer hung, by means of a string, in this upper tube, and that I often climbed up and drew up the thermometer to learn the temperature. The outside temperature had very little effect upon that inside the pit. When the mercury stood at zero in the open air, the thermometer drawn up from the clamp showed 43°. It did not vary three degrees from this in all winter. The bees wintered perfectly in both clamps. It seemed as though they were just about the same as when set in the previous fall. The straw around them, and the hives and combs, were dry and clean, and free from mold.



Relative to introducing queens with absolute safety, that veteran in the business, M. M. Baldrige, of Illinois, says:

The only safe way I have tried is to give the queen to hatching brood, the same as you advise; but I place the same in a top story over the brood-nest, with a fine wire screen between. This keeps all robber bees and the bees of the bottom story away from the queen, and insures the requisite heat for both the queen and

the hatching bees. Any time inside of a week, and when there are plenty of bees in the top story to protect the queen, I remove the wire screen and let the bees in the bottom story have access to the queen. Of course, the queen in the bottom story has been previously removed and all queen cells destroyed. A day or so later the brood in both stories can be consolidated in one story, if so desired.

Writing on the same subject, Mr. B. F. Jones, of Idaho, says:

After the queen arrives I at once examine the queenless colony that is to receive her, destroying all queen cells that are started. If a queen is to be removed, it is done in the morning of the day when her successor is to be introduced. If nuclei are to be formed, it is also done during the forenoon, and the queen in either case is to be given at dusk when the bees are all in. When evening approaches, if it is cool I begin early; if warmer, and the bees late returning, I delay somewhat.

For smoker fuel I use white-cedar bark; although any kind can be used. I also use, as a starter, a piece of burlap, or old cotton rag, impregnated with saltpeter by soaking in a solution of saltpeter and drying. When nicely started, a teaspoonful of any granulated smoking tobacco is dropped in. I first give the queen a puff, then puff smoke at the entrance of the hive sufficient to drive the smoke to every part of the hive. After one minute I raise the cover carefully, following it with sufficient smoke to reach every bee and drive them back. Then I pry off one end of the wire cloth of the shipping-cage, and allow the queen to run down between the combs, following her with a puff of smoke, drop the quilt, and close up the hive. Never dequeen or form nuclei in advance of receiving a queen, for she may never come, or may arrive dead. See that smoke reaches *every bee*, as well as the queen; and allow the queen time to quiet down.

Mr. J. D. Bixby reports moving 46 colonies of bees from Iowa to Saratoga Co., N. Y., a distance of 1100 miles. The trip occupied $4\frac{1}{2}$ days. The bees were mostly in eight-frame Dovetailed hives. All the colonies went through alive and in good condition but one. The consumption of stores during the trip was large. The loss in bees was heavy, most colonies having from a pint to two quarts dead on the bottom-board. Not one wired Hoffman frame was broken or damaged during the trip.

Mr. Hutchinson will receive the sympathy of all on account of the loss of his father, who died recently in Tuscola Co., Mich., at the age of 82. Few better things can be said of a man than what W. Z. says of his father in the following: "Every animal on the farm was a pet, and had a pet name." Once the old family cow wandered into the woods so far she did not return till the next day. The old gentleman went into the house and spread a big slice of bread with butter, sprinkled on a thick layer of sugar, and fed it to the cow when he found her. Editor Hutchinson has been building a new house; and moving into this, together with attendance at his father's funeral, delayed the October issue of the *Review* nearly a month.

SOUTHLAND QUEEN.

The editor says:

We notice that John E. Bradley, of Augres, Michigan, is held up as a fraud in GLEANINGS. This same man has bought queens of us, and will not pay. We wrote the postmaster of Augres, who gave us information that Mr. Bradley was not reliable, and advised us to get our money first. Mr. Bradley orders the best breeding queens. As he never intends to pay he

gets the best and leaves the queen-breeder to mourn. We are in hopes he will get no more queens that way.

Concerning that after-swarm at the home of our old friend W. H. Laws, the editor waxes mirthful in the following manner:

There was a swarm on election day at Round Rock, Texas. It was an after-swarm, but just as good, so far as we know, as any of those before it. It was a sweet little queen—a baby girl.



SELLING CANDIED HONEY.

Low Prices, and the Cause; Supply, Demand, and Conditions Govern; Fowls' Prices.

BY R. C. AIKIN.

Some people can not bear to have anybody else do things other than as they think is the way, so it comes about that this owlish fellow on the ridgepole has stirred the fighting propensities of a certain Fowl on a lower round of the ladder. It has always been my ambition to try to stand at least the equal, so far as was possible, of any other fellow, and, if possible, to excel; but here I am, treed by that fighting male member of the Fowls family away down in Oberlin, Ohio. I am glad of one thing—he is too clumsy to climb up to my high perch, so I am going to crow (hoot) away at him just as much as I please.

I suppose if I were away down in Ohio I might do as the Ohio Fowls do; but since I have climbed up (I am a Buckeye too) where I can see over the stumps and have a clear view through the clean pure air of this upper stratum, I shall make the feathers of the other tribes stand upright with my hootings.

Now, friend F., since I am up out of danger I will forgive you for your efforts to flop me down and dig your talons into my flesh because of this matter of selling candied honey. Just smooth down your feathers and listen. I won't steal away all your prices and trade. I shall show you that I am indeed your friend. You have been looking up through the misty moonlight, and, seeing that peaceable little owl, you got scared. If the owl and I can be at peace in such close proximity, surely you need not fear me at the distance you occupy.

Some months ago I received a letter from a New Yorker, and in it was a passage *somewhat* like this: That so prominent a bee-keeper as I, selling honey at 6 cents a pound, would do more harm than all the adulterators in the whole country. Well, had I not been used to being accused of things of which I was not guilty, and of receiving sharp thrusts, I should, no doubt, have had my feathers ruffled at

least a little; but as it was I went marching round, hooting as before.

It seems that friend Fowls is making a mole-hill into a mountain, and that the said New Yorker is unduly alarmed. It is true I have sold a good many tons of candied honey right to consumers, they to melt it if they wish it liquid, and that I have also sold much honey at 6 cents per pound.

It is said that the city of Denver consumes more honey per capita than any other city in the United States; and while it is only 46 miles by wagon and 56 by rail, I seldom sell any honey there. There is an immense production of honey about Denver and tributary country; and when there is a fair to good crop we must export more or less. When I came to Loveland, ten years ago, it was a village of about 1000 population. I believe there were not 10 people in the village worth \$10,000, and very few worth even \$1000. Why, my dear Mr. Fowls, if the store-keeper had offered the citizens a syrup in some fancy glass that cost the consumer as much for the package as for the syrup, such dealer would have been thought crazy.

Now let me tell you that every grocery in my little home town has honey for sale, and they sell, too, and Denver is in much the same fix. There is another fact I want you to *repeat over and over* until it is *fixed* in your mind to *stay*. It is this: Granulated sugar is also in every store in all our towns, and so are glucose mixtures in some form in most of them and many have sorghum and other syrups. These are staple sweets, and they are the sweet consumed by the masses; and if you stop to think, you know why; but since you do not seem to get the idea I will tell you.

There is all over our land a vast population who never taste honey, and a great number who never even see it once in a year—very many *never* see it. The production is limited, altogether too limited to supply all the people.



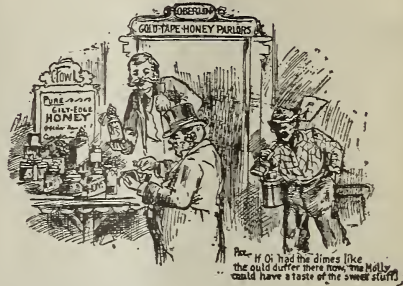
AIKIN AFTER FOWLS.

Then the price (not mine) is *strictly prohibitive* to the common people—common financially. Mr. Fowls and that New York man (I do not name the New Yorker, because he has not come out publicly, and when I asked him to give me some figures for publication he never replied) know very well the common people *can not afford* to buy honey at fancy prices, and *will not* buy much when they can get sugar much cheaper.

The great mass of the people are of the "common herd" so far as finances are concerned—unable to spend money freely. These

people buy sugar and other cheap sweets, of necessity. They *are willing* to buy my honey—yes, they are *more* than willing; they *much desire* it.

I said I had sold much honey at 6 cents a pound, and here is how it was done: If my customers came with their vessels to get the honey they paid me 24 cents for 4 pounds. If I furnished them a 3-pound lard pail they also paid 6 cents more for the pail—30 cents for 4 pounds of honey. Do you not see that my customer's honey cost him 7½, and at the



THE FANCY ARTICLE.

same time he could buy sugar at 6 and less, and package thrown in? and a little water with the sugar makes a *fine syrup*. The question is a simple one. There is not in my town, and adjacent territory within 15 miles, enough people to regularly consume honey as a staple sweet at fancy or luxury prices, to provide a market for ¼ the product in said territory. My town has a total population of about 2000. If each man, woman, and child in the place would consume 10 pounds of honey annually, I could sell only 20,000 pounds if I got the entire trade. My own crop alone would make at least 15 pounds per capita, and there must have been from 10 to 15 pounds more produced by others. What shall we do?

While I sold at 6 cents a pound for the naked honey, I *got 6 cents a pound for it*. Do you comprehend that, Mr. Fowls, and Mr. New Yorker? The A. I. Root Co. catalog for 1900 quotes Muth 1-pound jars at just a trifle less than 4 cents each. I do not know the weight of them, but I do know that if I got them here at a cost of ½ cent each for freights and drayage I should do well. Thus they would cost me 4½ cents each. Six cents for my honey and 4½ for the glass makes 10½ cents. Put to this another cent and a half for freights to Oberlin, brother Fowls, and the honey costs at your depot on track 12 cents a pound, or twice the cost of granulated sugar laid down at same place.

We will assume that Mr. Fowls has bought a carload of my fine honey to splice out his short crop. He must have something for his trouble and risk, so he adds a cent a pound and puts the honey into the groceries. The grocer must add about two cents apiece more on each jar, thus the honey costs the consumer 15 cents. This honey, mind you, is in no way inferior to Mr. Fowls' extra-fine superior double gilt-edge Oberlin product. Say, Fowls,

how many carloads will you purchase outright annually, spot cash on track at Oberlin, you to put up a forfeit of \$500 in case of a failure on your part, and I lay down the honey there at 12 cents a pound in 1-pound glass jars? Don't forget I want 6 cents a pound for the *naked honey*, you to do all the liquefying and exchanging with the retailer?

I will tell you what I will do, Mr. Fowls. I have several thousand pounds of fine extracted in 4, 7, and 14 pound sizes (the regular 3, 5, and 10 pound lard-pails), and all candied solid. If you will pay me 7 cents a pound for this honey, and the *cost* of the pails, you to pay the freight, then the honey shall be yours, and you may make all you please out of it. If I am to be accused of selling too low you may have a chance to buy my honey and get it out of the way where it will not utterly ruin the market. Terms are that you deposit the money in the hands of The A. I. Root Co., then as soon as your agent releases the honey to you at Oberlin, and it is properly checked out, they remit to me. This year I am retailing *honey* at 7 cents.

I want every bee-keeper who reads this to know that, when I was retailing candied honey (or liquid) at 6 cents, the best I could do in Chicago or other principal markets was 6 cents. The freight to Chicago is 97 cents (which means on net honey over a cent) in less carlots; Oberlin, Ohio, where big prices prevail, still more of course. The packages, if 5-gallon cans, were $\frac{3}{4}$ cent; thus if I sold at what it was *possible* for me to get away from home I got but $4\frac{1}{4}$ cents for my honey. That pesky stingy Fowls never once whispered to me that he could get me 25 cents for that honey in Oberlin. Just think of it! I could have packed that honey in 1 pound jars at $4\frac{1}{2}$ cents each, paid 2 cents a jar freight to Oberlin, making $6\frac{1}{2}$ cents, given Mr. Fowls 5 cents commission, and his retailer $3\frac{1}{2}$ cents, then still have 10 cents for my honey, when in Chicago it would bring me but $4\frac{1}{4}$. That shows the good will and brotherly feeling Mr. Fowls has for a fellow-producer. He tries to make us believe it will sell at 25 cents a pound. See page 305. I want you, dear reader, to note that *not one* of those who are criticising me for selling my honey at 6 cents would purchase it at that price, nor show me where or how I could get that out of it. I only wish it were possible for me to get that much year by year. I now get 7 cents for bare honey, and I will venture that Mr. Fowls can not do one whit better on an equal quantity per capita in his boasted high-rate town.

Those people who get such good prices are selling to the few who can and do buy luxuries; and so long as their production does not exceed the consumption of those few at fancy prices they are all right, and I have no kick. I suppose they would be shocked to hear that here raspberries are sometimes sold at less than \$1.00 per crate of 24 pints, while in other places they would bring two or three times that. Or in corn countries, where it is impossible for the people to consume it all, they sell at 10 to 20 cents a bushel, while here we pay two or three times that. Again, less than 500

miles from Mr. Fowls' home, I have heard of peaches selling at 15 cents a bushel; but here we seldom get them for less than \$1.00 a peck.

Brethren, if some of us sell honey too cheaply, just buy us out. We should be glad to sell you some to supply your fancy trade, and we will take ordinary prices too. Oh, yes! just bring your bees and come. Flour and honey are cheap here, and freight rates to Ohio are not much more than "the traffic will bear." Look out, Mr. Fowls, you better get your honey sold at fancy prices quick before I get there with a few cars of western stock; because, when I get to selling fine candied honey in 4, 7, and 14 pound pails there, and everybody buys, your *glass* trade will be done. I think I'd better take your advice, and put up my prices here to 15 or 20 cents. That will shut off all but my half-dozen or so wealthy customers. Then I am coming with my crop to *share your excellent trade*. Come to think about it, I forgot to say that wealthy people do not buy very much honey—just a little of honey, fruits, meats, nuts, and other luxuries. Come, brother Fowls, let's do a little business. Loveland, Colo.

[Mr. Fowls will soon have an article, or articles, on bottling extracted honey, and how he gets higher prices for his honey. In one of these he will doubtless "pay his respects" to the Ridgepole (F)owl. My! won't the feathers fly?—ED.]

EXPERIMENTS IN INTRODUCING QUEENS.

BY ARTHUR C. MILLER.

"'Tis an ill wind that blows nobody good;" and, old as the adage is, it is as applicable to-day as ever; and the past season, while giving almost no honey, has offered most excellent opportunities for various experiments. Those of us who made the most of these opportunities have gotten at least some good from the ill wind.

I devoted much of the season to experiments in introducing queens; and while I do not consider the results as in any wise conclusive, they were at least interesting, and may be of value to others.

To begin with, I wish to emphasize the fact that, during most of the time covered by the experiments, there was no honey being gathered. Also, some of the queens were received by mail from greater or lesser distances; the rest I reared. For convenience of ready comparison I will give each method and its results together.

1. Queens liberated from shipping-cage by bees eating away candy.

(a) Colony having all brood taken away.

Queen was received, but it was two weeks before she began to lay.

(b) Colony with brood; queenless but 24 hours. Queen killed. Two cases.

(c) Colony with brood, but queenless 3 days. Queen received. Two cases.

2. Queen caged on hatching brood. Two killed, one received.

3. (a) Queen on own comb, among her own bees, put into colony just unqueened. Killed.
- (b) Same, but colony aware of queenlessness. Killed. Five or six killed thus. I tried tobacco smoke in some cases, but could see no difference.
- (c) Queen given same way to populous 3-frame nucleus containing laying workers. Queen received all right.
4. Queens run in under mat at night. Killed. Two cases.
5. Simmins' "fasting method," i. e., queen alone in small box or cage, and without food for 30 minutes; kept warm meanwhile, and then made to run in under mat, preceded and followed by a puff or two of smoke. A lot of trials and no failures.

In this last method I used tobacco smoke—the tobacco being put in on top of the planer-chips after they were burning freely. How much of the success was due to the tobacco

less a few hours—or at least that has been our experience. I do not see how No. 5 differs very much from 4—that is, I do not understand how fasting for only 30 minutes on the part of the queen should induce a friendly behavior on the part of the bees. I should be more inclined to believe that the favorable result was owing to the tobacco smoke.—ED.]

BEE-KEEPING IN THE SOUTH.

From 39 to 62, and 2200 lbs. of Honey.

BY L. W. M'RAE.

In this picture are mostly eight-frame hives. They are now in winter-quarters, so you see how we are blest in climate. I started in the spring with 39 colonies; increased to 62. I have now doubled back to 57. I have taken off 720 lbs. of extracted, 1472 well-filled sections, and plenty of stores for winter.



AN APIARY IN ALABAMA.

smoke I can not say, but I believe it had very little to do with it.

The Simmins method is certainly easy and simple, and, in spite of adverse honey conditions, was uniformly successful.

Such were the experiments. Interpret them according to your own experiences.

Providence, R. I., Oct. 22.

[The result of No. 2 is a little unusual. The result in No. 3, *a* and *b*, is what I should have expected. Queens introduced by this plan in 4 are very often received kindly. We once introduced some 25 or 30 at night in this way, and all were received; but every colony was surely queenless, for we had taken the queens out a day or two before. A colony longer queenless, or queenless long enough to get some of their own cells started, is more likely to reject a queen than when it has been queen-

Bee-keeping with improved hives is a new industry in this part of Alabama. I was one of the few who were cranky enough to invest in it, four years ago; and, being afraid of my own works, I went slow until now I am satisfied it can be made a paying industry.

I find another trouble is to get our people educated up to paying fancy prices for fancy honey; they have been so long paying 10 cents for chunk honey, young bees, and pollen, mixed, as cut from the box hive, that 12½ cents is the best I could do this year for sections; 8½ for extracted.

I am now trying Belgian hares on a small scale, although one of my fruit-journals says a man should be prosecuted criminally who would bring them into a State.

In the picture is my wife, a neighbor's boy, and myself.

Calvert, Ala.

BARRELS VS. TIN CANS FOR HONEY.

A Strong Plea in Favor of Tin Cans.

BY ELIAS FOX.

Friend Root:—I can truly indorse all that was said in favor of tin cans as against barrels for the shipment of honey, at the Chicago convention, as per your issue for Oct. 15. I have had quite a little experience along this line myself, and have decided never to use a wooden package for extracted honey again. I began putting it up in wooden packages with wooden hoops; and I found by letting them stand a short time the hoops would loosen up, and, unless watched very closely, and hoops tightened, there would soon be a leak, no matter how good the cooperage; and, even in shipping, the hoops would loosen. Then I had my cooper use iron hoops, and my experience was the same, by letting the packages stand for any length of time, notwithstanding we selected the choicest and most thoroughly seasoned staves, and the cooperage was perfect; and the packages were made up a year before using, and kept in a dry place, and hoops retightened, and filled dry. If there was a piece of heading a little cross-grained the honey would ooze through the pores and even through the end of the staves, and almost invisible knots, no larger than a pinhead. Of course, so far as the loss was concerned from leaking, it was nominal. But if you count the amount of honey absorbed by the wood, and the leakage together, it would equal if not overbalance the difference in the cost of the two packages. Then, again, think of the nasty sticky packages to handle, and hands and clothes daubed with it; and when barrels are in this condition, and rolled along, as advocated, dust and dirt will stick to the leaking spots and make an unsightly package, aside from smearing depot platforms and car-floors, to attract bees, flies, etc.

The barrel side of the debate say if a case is dropped, the solder will loosen and a leak would result, and that the cans are too unwieldy and too heavy to handle. A man should not be so awkward as to drop a package. But suppose he is, and the package should be a barrel. About the time you had it up to the wagon-box, and the head should burst out, which would leak the worse? As to the cans being a little too heavy, I would say they are; yet I have moved, alone, 5000 lbs. in two-can cases in a day; had ten rods to carry it to the wagon, two miles to haul it, and piled it up five cases high, and my consolation paid me for the extra work in *knowing* there was not a drop of leakage, and no hoops to loosen while I slept.

We can not be *too* neat in handling and marketing extracted honey. So I say, give me new 60-lb. cans, and I will guarantee my honey to reach *any* market in such a condition that I shall not be ashamed of it, and no loss from leakage or absorbing. If we want a *cheaper* package for dark honey, there are plenty of second-hand cans and cases to be bought as cheaply as barrels.

Hillsboro, Wis.

[It is very important to have a good grade of square tin cans. Last season there were some on the market of a cheaper quality, and some trouble was experienced from such cans breaking or leaking.

The boxes holding two cans ought to have the hand-holes about half-way down. This raises the bottom of the box above the knees while it is being lifted and carried, so that the burden does not interfere with walking. The trouble heretofore has been that the hand-holes were made only half or two thirds through the wood, and were near the top of the box.

We will use our influence to have all can-makers have the hand-holes changed to the center of the ends; and such holes should go clear through the wood. So made the boxes can be handled without bumping the knees in walking.

From our own experience we are satisfied that the market will soon insist that the light grades of extracted honey shall be shipped in cans. All that is used for manufacturing purposes, of a darker or poorer quality, will probably always be sent in barrels.—ED.]

BARRELS VS. SQUARE CANS FOR HONEY.

On page 812 it is said it was admitted that barrels were slightly cheaper than the cans. Possibly location may cut some figure as to cost. Let us see. We here in Florida can buy a well-finished barrel, guaranteed against leakage. The cost of such a barrel will be less than \$1.25, delivered at the apiary. It takes, say, 6 cans to hold as much as the barrel does, and we will say the cans cost 40 cts. each. Then the cost of cans to hold 30 gallons of honey would be \$2.40 as against \$1.25 for the barrel. The freight on empty cans is more than it is on empty barrels, and the cost of shipping them filled is 95 cents for honey in barrels, against \$1.18 in square tin cans. Now, then, it is plain that barrels are much cheaper for us, as we can get no more for our honey in cans than we can in barrels. As for leakage of barrels, it all depends. If your barrels are thoroughly coopered and waxed inside, there will be no leakage; if they are not, there is trouble ahead. Barrels will be used in this part of the world until we can use cans at the same cost. We may jam our fingers with barrels, and we see no good reason why we could not pinch them if we used cans.

M. W. SHEPHERD.

Mannville, Florida, Oct. 22.

[While a great deal of Florida honey is fit for table use, much of it is used for manufacturing. It is generally conceded that, for the latter purpose, honey should be put in barrels. There is no chance for argument here, except, perhaps, in localities where wooden packages can not be used owing to the dryness of the climate. Then, of course, tin must be used for all grades.

You say you can get no more for honey in cans. Are you sure about that? This morning we received an order from a large buyer for 2000 lbs. of extracted table honey. He specified that if it was put in cans he would pay half a cent extra. Again, we bought a

carload of honey in barrels, from W. J. Pickard, of Wisconsin, who, it will be remembered, at the Chicago convention championed barrels as against cans. Well, when we came to sell that *same* honey, the man to whom we sold said he would have paid *one-fourth of a cent more if it had been put in cans*, and the Pickards know how to barrel honey if any one does. Mr. Pickard offered the honey to us in barrels. If he had offered it in *cans* we could have paid him extra. The trouble is, you barrel fellows haven't yet found out that some markets will pay extra for honey in cans. It is our present practice in the case of nearly all table extracted honeys to pay half a cent extra in small lots when put in cans; but the fact that we pay the extra half-cent may not always show in the quotation. For instance, John Jones writes that he has 2000 lbs. of clover honey in barrels. We make a price direct; but if Mr. Jones says he has 1000 lbs. in barrels and 1000 in cans, the quotation may show half a cent more for the latter than for the former, depending on the producer, and the market at the time. We do not claim this has been our universal practice for several years back; but we have discovered the great convenience, as well as the saving in loss, by having the honey in cans, so that we are now willing to pay a difference. Well, now, the next time you secure a crop of honey, put part of it in barrels and part of it in cans; and if it can be used on the table—tupelo and man-grove, say—just note the difference in the quotation.

By your way of figuring, the barrels will be cheaper. But let us figure again. Suppose you have half a cent extra for the honey in cans. The saving in cost of receptacles and the saving in freight would make a difference in favor of the barrels of \$1.48 on 30 gallons of honey. This 30 gallons would, by the ordinary figuring, amount to 360 lbs. This, at half a cent a pound, would make \$1.80, or a difference of 32 cts. in favor of the cans in actual saving.

We do not know what is the practice of the large buyers in Chicago in reference to honey in cans and that in barrels; neither do we know what the price is in the New York markets; but we are firmly convinced that the trade will in time, for all table honeys, offer half a cent extra, or enough difference to get tin cans used everywhere. Now, let it be distinctly understood that all dark honey should probably always be shipped in barrels and kegs.

I do not say that we *always* pay half a cent difference between the two packages. A good deal will depend on the condition of the market; whether the honey is to be sold out in large lots or in small lots; and whether the man who raises the honey has the reputation of getting good barrels, and knows how to cooper honey in them so that they will not leak; but there are very few who know how to put up honey in barrels so they will go through to destination in good order.

Now, why do manufacturers, bakers, and tobacconists, prefer barrels? Simply because they do not want to fuss with little packages.

The honey is run from barrels into large vats, and the barrels are handled by means of cranes.—ED.]

CUBA AFTER THE WAR; ITS RESOURCES, ITS MOSQUITOES, AND ITS CLIMATE.

Some Words of Advice to those who Expect to Go into Bee-keeping on the Island.

BY H. G. OSBURN.

After the lapse of four years, September, 1900, finds me once more on Cuban soil. But what a sight meets the eye of the visitor if he takes a ride in the country as I did a few days after my return! Charred and crumbling ruins on every hand bear silent testimony of the awful ravages of war. That this fertile island, so lavishly endowed with nature's wealth, should have been chosen by fate to be the slaughter-ground of tens of thousands of her brave sons between 1492 and 1900 seems indeed an undeserved fate.

That the nineteenth century will mark the dawn of an era of prosperity and freedom for a young and deserving generation, there can be no doubt. The soil over which has run so much blood, which three different armies have fought for, holds in its embrace vast wealth awaiting the advance of modern civilization. Although we are only 90 miles from the nearest point on the Florida coast, still in that distance great changes have taken place. We find a different climate and a far different people; a country that is very rich, and a climate that is comparatively mild, with the exception of about three months in mid-summer, when one would almost wish he were in Greenland, in hopes that the change would do him good. But we can not have climate and conditions made to order, and so I will venture to say that any man with a little money, and lots of push and perseverance, willing to put up with a hot damp climate, and who is not afraid of flea-bites or sticky mud, can, I think, make a good living here now, as the price of every thing is high, and there is an unlimited demand for every thing raised here at the present time.

The bee-keeping industry, so far as I can find in the short time I have been back, is advancing quite rapidly. Several parties of northern capitalists have come here and started in the business on a large scale, knowing absolutely nothing about the climate or the difficulties to be overcome, some not even knowing a worker from a queen, but fully aware of the fact that flowers produce honey, and that bees gather honey; and also, having read or heard some one say that flowers grow profusely here, they thought by bringing a few thousand hives here, or buying them here, they can set them down anywhere, and the bees will go to work and fill the hives with wealth, and all the owners have to do is to gather it and sell it. But one or two summers, when the moon gets just right for the moth to have its summer appetite, and the fast-spreading foul brood commences at the other end of his apiary, he will wish he were a boy

again unless he knows just what to do and how to do it.

The advisability of first coming here to visit those of us who have large apiaries, offering a fair price for information that has taken us years to acquire; inquiring into and studying the conditions that go to make up a successful year or crop; acquainting oneself first with the most successful hive in use here, together with the other fixtures that go to make up a large apiary; the best strain of bees for a winter honey-flow, and many other important hints that they might pick up, which would be of vast importance to a beginner here, all of this had never been taken into consideration until it was too late. After one has spent thousands of dollars, and brought here carloads of fixtures which may be all right at home but not in Cuba, the sad truth dawns at last, and the new comer becomes fully aware of the fact that he has made a bad mistake. He returns home and paints a dark picture of bee-keeping in Cuba among his friends, saying, "I have made a miserable failure of it, lost all I put into it, and am thoroughly disgusted and discouraged. If you will profit by my sad experience you will stay where you are. It is unmercifully hot; the fleas will eat you alive; it rains every day, and the ground is so sticky you can't step out of the house without sticking fast. Take my advice, and stay at home and leave well enough alone." That is about the way their story runs.

Well, take my advice too—one who has lived here 12 years—and stay at home unless you first come here and find out which is the best, what are the difficulties to be battled with, how to best fight them, whether or not you like the climate, and the insects which find the rich red blood of the new comer, the very best stimulant for a good appetite. When I hear of these big places starting up under perfectly green management with a liberal sprinkling of foul brood as a side dish, I merely shake my head and feel the deepest sympathy for them, for my long experience here has taught me only too well what the ultimate result will be in nine cases out of ten. Remember, one hundred dollars may save you several thousand; that a reaction will come before long is certain; then we shall see who are the successful ones.

The surplus season is now at hand, and the bees are in the best condition I ever saw them at this time. They are fully two weeks ahead of what they used to be here on this range before the war. I shall commence extracting on Monday, October 15, ten days earlier than we ever commenced here, and that was the year we took 73,000 lbs. from 600 hives in five months.

Punta Brava de Guatao, Cuba, Oct. 10.

[Mr. H. G. Osburn is a son of the late A. W. Osburn, who for some years conducted an extensive bee ranch in Cuba. The senior Osburn is the only one who ever operated a steam honey-extractor, the diameter of the reel of which was something like 8 feet. It was with this mammoth machine that he took,

if I am correct, 73,000 lbs. in 5 months. The junior Osburn worked with his father during this time, and is not without some knowledge and experience concerning the resources of the island. His advice to make a preliminary trip before migrating to that unknown land with its unknown difficulties is good. No one should ever think of "pulling up stakes," taking his all, and chancing every thing in a move to a new locality, much less go to a climate that is essentially different from the one in which he has been brought up. I am planning to make a trip into Cuba in February, to see and know for myself some of the peculiar conditions. I'll give due announcement of the time I shall arrive, and where.—ED.]

HIVING SWARMS BACK IN THE HIVE FROM WHICH THEY CAME.

Bleaching Comb Honey a Success.

BY MRS. D. A. HIGGINS.

Upon reading an article of Mr. Doolittle's about this matter I thought it might be well for me to give my experience in this line. About four years ago we were having quite a good honey harvest, and about the first of June my bees took the swarming fever, leaving, as Mr. Doolittle says, many boxes of honey partly finished. At first I was at a loss to know what to do, as I was quite a new beginner in business. At last I resolved to try the plan of returning the swarm to the same colony whence it came; and as soon as a swarm would come out I would go to the hive that it came from, remove all the queen-cells, take out two or three cards of honey from the brood-chamber, and place foundation-frames in the place of them. This seemed to satisfy the bees perfectly. They would soon draw out the foundation; and in being allowed to make new comb they seemed to have no inclination to swarm again. I returned several swarms in this way, and none of them ever came out the second time. I now fear no trouble in being able to get along without loss of time in case of swarming. The bees seem to work better after than before swarming. These cards of honey taken from the hive to make room for the foundation can be placed in some weak colony, or thrown out in the extractor.

I live where the bleaching process for comb honey is adopted, and think it a great success. Bonsall, Cal., Oct. 27.

[The plan you describe is all right, and a modification of it is practiced generally by the most progressive bee-keepers. It is the rule, however, to hive the swarm on the old stand on foundation only, giving no combs or brood. This, with what is left of the parent colony, together with the old hive, are put in another location.

I am pleased to know about the bleaching. If you can give us any further information than what has already been printed I should appreciate it much.—ED.]

QUEENS BY THE PECK.

Swarthmore's New Queen-cell Hatchery; a New and Simple Method of Making Queen-cups;
How to Keep a Plurality of Queens in One Hive over Winter.

BY SWARTHMORE.

Mr. Root:—I am sending you by post a queen-nursery cage that I have used with wonderful success the past season. You will notice that it is of peculiar construction, almost entirely separable; that is, the tins are easily slid in or out of the saw-cuts, and the top-bar is removable and divisible. I have charged this sample cage with wax ready for cell-starting, thus: Each hole in the top-bar is filled with melted wax, and allowed to cool hard. The surplus wax is then shaved flush with the wire, and the top-bars are then laid aside, ready for use. When wanted for cell-starting, simply place a top-bar in the sun for a few minutes, until the wax becomes pliable; then press the cup-forming stick into the center of each plug of wax, and you have very quickly prepared 25 cups for cell-starting—no fire, no machinery, all simple and rapid hand-work. By first putting the forming-stick into

Just before capping, or as soon as the cells are pinched, or as one prefers, remove the top bars to the honey-house or queen-house, and slip them into the cage part; then slide the dividing tins into their places; then put on the zincs if the cells are to hatch with queenless bees, or the screens if they are to be put into an upper story. If given to queenless bees no food will be necessary, as the bees will enter each compartment and care for the young queens just as well as though they were upon the combs. If put into an upper story to hatch out, simply saturate the sponges with honey. These sponges also act as plugs, which are easily removed to allow queens to run up into cages for introduction or shipping. By removing the wax plugs, hatching cells may be pushed into each hole in the old way if the apiarist prefers that plan.

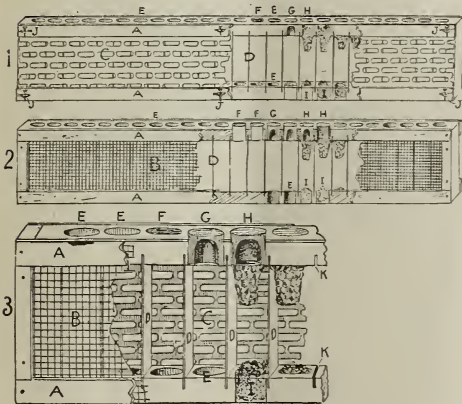
The numerous possibilities of this cage can not all be covered in one letter at one sitting, for the reason that I can not think of them all in so short a time. I have tried all methods of cell-starting with these cages. They all work; but I prefer to cut bits of one cell each, and peg them into holes made by pressing the pointed end of a leadpencil into wax plugs.

Two years ago I succeeded in wintering four laying queens to the colony in a crude construction of this cage, and last year I wintered six to the hive. Now I shall undertake to winter 75 to the colony. Three of these nursery-cages fit nicely into an empty frame, and each nursery will hold 25 queens; and by placing the frameful of queens in the center of a powerful colony I have every reason to believe that 95 per cent of them will come through alive and well. This brings the Northern queen breeder on an equal footing with the Southern craft, you see. When used as a queen-magazine in this way, each part of the cage is thoroughly waxed to make more comfortable quarters for the queens, and zinc is placed on both sides, also waxed. At the present moment I have one colony caring for 150 laying queens, 75 virgins, and 200 hatching cells. To keep up the strength of this colony I augment the force by occasionally giving hatching brood taken from upper stories, above zinc; and so long as this is done there will be no desire on the part of the bees to kill the queens, yet they can not rear a cell.

I have one hive arranged with zinc division-boards which, at the present time, contains 40 caged laying queens, and one at large on the combs, which I consider a much better plan, but did not think of it in time to be of any use to me the past summer. I have also a colony with 40 queens at work on small combs, in compartments. This is for testing purposes.

There are many points about the introduction and handling of queens in this shape to prevent the balling or killing of a single one, which I will not undertake to cover now.

I am full of new points on bees, among them being eggs for queen-rearing, by mail. I have successfully reared and mated large numbers of queens from eggs sent to me from all parts of the country by post. You will at



SWARTHMORE QUEEN-CELL HATCHERY.

- | | |
|---|-----------------------|
| A.—Strips. | 1. View of zinc side. |
| B.—Wire screen. | 2. View of wire side. |
| C.—Perforated zinc. | 3. Enlarged view. |
| D.—Division tins. | |
| E.—Holes. | |
| F.—Holes with solid wax. | |
| G.—Wax-plugs pressed in cup form. | |
| H.—Queen-cell built from wax-pressed cup. | |
| I.—Sponges saturated with sweet. | |
| J.—Staples on zinc side to fasten strips A. | |
| K.—Saw grooves to hold division tins. | |

the mouth, and then pressing it into the pliable wax, and giving it a rapid twist between the thumb and fore finger, you will secure that smooth surface so important. The Doolittle-ites may now transfer larvæ, or the Pridgen-ites may push in a cradle and all, or the Alleyites may attach strips of comb to the top-bar of this nursery. It seems to me that it fills the bill for all hands. When the top-bars are prepared, by whatever method one likes, they are fitted into a frame and given to the bees until worked out.

once see what an advantage this is going to be in the improvement of stock. It places at the disposal of every queen breeder in the country the finest queens of every other queen-breeder, and the criss-cross fertilization obtained will certainly be productive of wonderful developments. My own golden-all-overs have been much improved by the introduction of the finest drone brood, posted to me in egg-form at very little cost, etc. Then I have arrangements for fertilizing 40 virgins to the full colony, at a minimum of cost; improvements in nuclei management; an entirely new plan for securing comb honey in larger amounts and on surer bases than the old methods; new honey-packages not entirely perfected. I need the help of the fraternity to bring complete success in many of these experiments. Several are trying my U. D. arrangements. I have succeeded finely with it myself; but I do not know what it will do in the hands of others.

[Swarthmore's queen-cell hatchery is very similar in general design and principle to the hatchery described some time ago by W. H. Pridgen, in the *Bee-keepers' Review*, and later in the *American Bee Journal*. The principal difference consists, not in the general construction of the hatchery itself, but in the manner of making the queen-cups. A careful reading of the article, in connection with the illustration, will show how this is done; and although I have not had an opportunity to try it, it strikes me as being the simplest of any of the methods heretofore proposed. Whether this is an improvement on the Pridgen queen-cups or goblets I can not say; but it appears to me as being simpler, and certainly easier for the average bee-keeper to undertake. In a word, Pridgen and Doolittle make their queen-goblets by dipping. Mr. H. E. Hill, of the *American Bee keeper*, by molding; and Mr. Swarthmore by compression, using a molding stick. The last named is cleaner, and more expeditiously performed.]

As Mr. Swarthmore says, these cups can be grafted or not, according to the notion of the queen-breeder; or they can be supplied with "cradles" containing young larvæ and larval food.

With this exception the plan is essentially the same as the Pridgen, which he will describe elaborately very soon in our columns. We are now preparing a large number of engravings which will illustrate each successive step.—ED]

MOVING BEES SHORT DISTANCES.

How Far do Bees Ordinarily Fly in Quest of Honey; Moving Bees Short Distances; a True Bear and Bear Story.

BY I. S. TILT.

Mr. Root.—On page 772, Oct. 1, you ask for the experience of others in regard to loss of bees when moved short distances. I have for a number of years moved my apiary, or nearly all of it, just after white clover is past,

two miles from home to catch the willow-herb honey-flow, and later the mint and fall blossoms, and I would say, before I forget it, that the flow from willow-herb seems to be very uncertain in this locality. I have had only one good yield from it in four years, although there was just a sea of blossoms each year. Some one may say, "Why move at all when you are only 2 miles from pasturage?" We are told by good authority that bees will fly seven miles in search of nectar, in extreme cases, but, so far as my observation goes, I find that they will not do much at storing surplus when obliged to go even two miles.

But we will say that they do go two miles in search of nectar (from my observation only very few do); they could not make nearly as many trips in a day as if they had only half a mile or less to go.

In regard to loss of bees when moving in the working season, I would say that I never had more than very slight loss. I use the eight-frame hive with flat cover, leaving on from one to two supers in warm weather, using wedges so as to make an entrance $12\frac{1}{2} \times 1$ inch. I nail strips up the sides of the hive, reaching from the cover to the bottom-board to insure against shifting, and letting out bees. I generally do this toward evening, using the smoker to keep them quiet; then when they quit flying I go around and put on the entrance-closers, and, presto! we are ready to load up. I always move at night.

My entrance-closers are made similar to your entrance-guards, only instead of zinc I use wire screen bound with tin around the edges with three blocks to hold them in shape, instead of two on your entrance-guards, one block being in the center of the closer. To fasten to the hive I use three 6-penny wire nails driven through the blocks into the bottom-board. I move with one horse, using a low steel wheel truck with bolster springs and a platform thereon, taking 16 colonies at a load.

I always leave a few of the weakest colonies at home to catch the returning bees; but there are never more than 100 bees that return home from each colony moved. I always leave the bees closed in next day until they become uneasy, then I use smoke in opening them, and set up a board or stick in front of the hive to bother them in coming out, so that they will mark their location.

In the fall, when the honey-flow is over I move home again for winter, and have had but very few bees go back to the old location then.

My bees are all on wired frames, and I have never had any trouble in breaking down combs. This year I averaged 50 lbs. to the colony after moving.

Now for a real bear story. There is occasionally a bear seen around these parts yet, but they are getting to be scarce. Every year, about the middle of September, one comes around to see the bees and get a share of the honey. They seem to have a "mouth for honey," as the fellow said. Well, this year one came on a Tuesday night and picked a hive up and carried it about 6 feet, took all of

the frames out of the hive but one, and ate, I should judge, about 8 or 10 lbs. of honey and brood. I have a shanty where I move my bees to with a bed and stove as furniture. There are no neighbors within a mile. I take my wheel and go to sleep in the shanty every night. On getting up Wednesday morning I discovered that Bruin had visited the bees during the night. During the day I took three bear-traps and set them ready to give the bear a warm reception if she returned that night, as I was sure she would. I was a little late getting back to the shanty that night, it being already dark, and as I neared the bees I heard the bear making off through the brush, she not having got up to the traps yet. I lay awake most of the night waiting for her to return, but in vain. Thursday night I arrived at the shanty before dark, went inside, and lay down and kept very quiet. About 8 o'clock I heard one of the traps snap and the bear make one "who," for all the world like a hog when scared; but the first jump took her out of the trap, it having got a very poor hold of her. She then went away, but returned the next night, went around all three of the traps, and took another colony, carried it away a short distance, turned it upside down, and took another square meal. Owing to thrashing, I was rather tired, and dropped off to sleep, and did not hear her at all; but on getting up in the morning I found that she had called again during the night. I then moved two of the traps to a new location ready for Saturday night. When evening came I went to the shanty early, went inside, and kept quiet so as not to scare her, as I felt sure she would not elude the traps again. About half-past seven back she came, and plunked a front foot square into one of the traps. I lit the lantern, took the gun and went to shoot her, but could not get near enough until she had taken the trap about 40 rods, with myself in hot pursuit. I was astonished at the speed she made with a large trap and clog on her foot, and that in thick poplars too; but eventually I got close enough to give her a shot which brought her down. I repeated the dose, and soon had the satisfaction of putting my hand on her fur. She weighed 213 lbs., she being quite poor yet. The two colonies that she took a feed out of have built up again for winter all right.

Filion, Mich., Oct. 8.

[I think we may safely set it down as a rule that bees will not ordinarily fly more than a mile and a half in quest of stores; and the great bulk of them will keep within the mile limit. I had very satisfactory proof of this a few years ago—proof that I will not now take space to give. While it is true that bees may fly seven miles, yet such long flights are so very rare that we do not need to count on them at all. If pasturage is beyond a mile and a half, I think it would pay well to move to where it is, notwithstanding some bees might be lost in getting back to the old location. Your scheme of having an entrance-closing device is good. I have thought of something similar a number of times, but

never got around to having a set of them made.—ED.]

MOVING BEES SHORT DISTANCES.

In GLEANINGS the question is asked in regard to moving bees short distances. I moved my apiary last spring after they had been flying in the spring. We closed up the entrances early in the morning of a cool day, and moved them to a location five rods away, and in the evening we placed a board slanting before the entrance, covering it over, and opened up just a little so the bees could come out; and after being closed up so long, and then finding the entrance covered they took their bearing, and scarcely a bee went to the old stands.

J. T. VAN PETTEN.

Washington, Kan., Oct. 18.



LOCATING AN APIARY.

"Good morning, Mr. Doolittle. I have come clear from Texas (by letter) to have a little talk with you about locating an apiary. I expect to start with 25 colonies, and wish to increase them to 100 during the years to come."

"Well, 25 colonies is rather too many to start with unless you have some knowledge already of bee-keeping."

"I have been studying the matter for three years to a certain extent, reading all I came across in the agricultural papers, and I have visited two or three bee-yards."

"This will be a help to you; but before entering the ranks of bee-keepers you should purchase one or two good books on bee-keeping, like the A B C, or Langstroth's work, and read them till you are familiar with the subject. Then you should take one or more of the bee-papers, like GLEANINGS, *American Bee Journal*, *Review*, *Progressive*, or the *American Bee-keeper*."

"I expect to do this; but what I wish to know just now is, what is the best position in which hives should be placed?"

"In reply to this I would say that they should be perfectly level from side to side, and slope a trifle toward the entrance or front of the hive, enough to carry off the water when it rains. This helps the bees also to build straight combs, where a person allows the bees to build them, instead of furnishing them with frames filled with comb foundation."

"Should hives be always thus fixed?"

"Fixing them in the way I have told you was on the supposition that the frames of comb run lengthwise toward the front side of the hive or entrance, as is considered best by nearly all of our leading apiarists. If they run crosswise to the entrance, then the hive should be level both ways."

"Understanding that part, the next thing

I wish to know is the distance they should stand from the ground."

"On this, good authorities differ. Some say from a foot to eighteen inches, and others think from three to five inches best."

"But what do *you* use?"

"I use an inch-thick bottom-board, with cleats two inches thick nailed on the under side of it, which rest on the ground and prevent the bottom-board from warping. This raises the hive three inches from the ground, that being, to my mind, the distance it should be."

"What reasons have you for that distance in preference to having the hives 18 inches high?"

"The reason for having the distance so little is that on cool windy days in early spring the bees easily reach the hive; while where the distance is great many would fail to get home, being blown down to the ground, or, in a numbened condition, drop under the hive, where they soon die from exposure. In this way many bees are lost just at a time when they are of the greatest value to the apiarist; for one bee in early spring is of more value than 100 after the honey harvest is past."

"Are there any objections to having the hives thus near the ground?"

"The objections to the low bottom-boards are that toads will get to the entrance to the hive in the evening, and often catch the bees; and ants annoy them more; but I consider neither of these to be equal to that which comes through the loss of bees from the high stands, as the toads can be caught and carried away, and the ants poisoned; besides, these two last do not affect the bees at all till they get prosperous in numbers, after warm weather comes."

"That looks reasonable. And now I wish to know how near the hives should stand to each other."

"My apiary is laid out on the hexagonal plan, the hives being ten feet apart in the rows from center to center, and the rows ten feet apart. Some place them closer, or as near as five feet; but I think that, where the ground can be had without too much expense, the saving of queens when going out to be fertilized, and less mixing of bees, more than pays for all the extra travel which the distance makes."

"But how do you manage to secure the hives in the hexagonal form?"

"To get the hives arranged in the hexagonal form, get a line of the desired length. In your case it should be 100 feet, having a pointed stake tied on each end. Five feet from the stake at one end tie to the line a white thread or string, four or five inches long. Five feet from this white thread, tie a red thread or string, and then a white one five feet from the red, and so on till you have red and white threads alternating at five feet from each other the whole length of the line."

"Having this line fixed, how do you proceed?"

"The line is to be stretched where you wish the first row of ten hives to stand, then you are to stick a little stake at every white thread.

Now move the line ahead ten feet, when you will stick the little stakes at the red threads. Then move ahead ten feet again, sticking the stakes at the white threads, and so on till you have stuck the 100 stakes for the stands for your 100 hives or colonies you expect to have in time. Having your stakes all stuck, level off the ground about each stake till you have a nice broad level place ready to set a hive on at a moment's notice at any time. Having it completed, and each stand occupied with a hive of bees, if you are like me you will consider that for convenience and beautiful appearance this plan is superior to any other."

"One more item, and I'll not bother you further. Toward what point of compass should the entrance face?"

"On this point there seems to be a difference of opinion; but here at the North the majority of our best apiarists think that no hive should face north of an east and west direction."

"Which way do you have yours face?"

"I have mine face south. But some of our best bee-keepers in this State think southeast should be the way, for then the morning sun will entice the bees out to gather honey early in the day. However, I see little difference in favor of any southerly direction; but the facing of hives to the north in this cold climate is objectionable, especially in winter, as it nearly precludes the flight of the bees during days when they would otherwise fly, and allows the cold north winds to blow in at the entrance, which is by no means helpful to the bees at any time of the year, unless during the extreme heat during the month of August."



THE ORIGIN OF THE HOT-PLATE METHOD.

In your editorial following my description of the foundation-fastener, Nov. 1, you speak of experimenting with one in which the hot plate slid in a groove, and seemed to think it was a feature of my improved machine. I never had any such combination on my apparatus; virtually the only difference between the modern and the original method is that the plate was *pulled forward* instead of being pushed forward. I have been for some time trying to look up the history of the attempts to use hot plates, and find in GLEANINGS for July, 1888, page 573, that you refer to one that you brought from Utica. My impression is that there was such a machine shown at the Utica convention in the fall or winter of 1887; but as I have not magazines for that time I can not be sure. If memory serves me aright, the machine shown there was somewhat of a curiosity, and did not work always with success, even in the hands of the inventor. As a matter of history it may be worth while to ascertain who this man was. All I claimed was the *discovery* of the *principle* and the *application* of it which made the hot plate a *success*.

In your comments on my suggestion for measuring the tongues of bees, and referring to the shapes of their heads (see page 846 for Nov. 1), I think you misunderstood my intent. What I wished to bring to your attention was in regard to the shape of the head, enabling the bee to plunge its face further into the flower before it has to use its tongue; so, possibly, by watching this feature as well as the length of the tongue we may make even more rapid strides.

Referring to the article on page 840, Nov. 1, by Mr. Stachelhausen on the "New Arrangement for Comb-honey Production," you will find virtually the same plan outlined in the *Review* for May or June, 1899, written by myself. But I am very sure that the experiments which led me to the development of that system were started by the article referred to by Mr. Stachelhausen as having been published in the *Apiculturist* some fifteen years ago. For the prevention of swarming, or, rather, for the making of swarms at our own convenience, the system is excellent. Mr. Stachelhausen's plan is worthy of study and investigation.

ARTHUR C. MILLER.

Providence, Nov. 9.

[My memory was not quite clear as to the construction of your original fastener; but I knew there was something about it that did not work right.

With regard to the matter of measuring the tongues of bees, I think I understood you correctly; but, as I before said, it is not so important to know how far individual bees can reach from the mouth parts to the bottom of the flower-tubes as it is important to know the *relative* variation in different bees. If the bees are all measured by the *same method*, the relative variation will be the same.

Years ago I spent much time with a microscope in studying the head and mouth parts of the bee. While I found a difference in the shape of the faces of the drone, queen, and workers, they were all the same with the last named; but recent developments seem to show there is a great variation in the length of the tongues, and, if I mistake not, the variation is confined to this part of the bee's anatomy only—Ed.]

PROPOLIS FOR HEALING.

Seeing something in the last issue of *GLEANINGS* in connection with the healing properties of propolis, and having known of its virtues in this respect for nineteen or twenty years, I thought it well to write. When first I went into the bee business, probably the second year, with Mr. D. A. Jones, some one told me of the healing properties of propolis, and I made the salve for years. This summer I advised a bee-keeper, who had a lot of propolis, to make some of the salve and sell it; but probably he considered it would be difficult to impress people with its virtues, and did not make any. The preparation is made by heating olive or sweet oil and propolis. Enough oil must be put in to make a paste that will readily spread when cool. If too hard, add more oil. An insoluble brown residue will be left when thoroughly heated. This must be

removed by straining or dipping when hot. That is all about it. The salve is excellent, and it would be well for every bee-keeper to have some of it in the house; and, more, I believe that where once a customer is obtained there will be no difficulty in more being required when the first stock is exhausted.

R. F. HOLTERMANN.

Springmount, Ont., Canada.

BLEACHING COMB HONEY.

You ask on page 646, August *GLEANINGS*, what class of soiled sections I can bleach. Well, I have never yet produced any comb honey that I could not improve by bleaching. You mention particles of propolis or dirt going clear through the cappings. I have never found any dirt in my comb honey except once, and I found that it was caused by using sections and combs that I had kept over. I stopped using them, and I have never had any dirt in my comb honey since. I sulphur and bleach all my comb honey, let it be light or dark. The light I can make as white as snow, and the dark white. It all depends on the darkness of the comb as to the length of time that it takes to bleach it. Comb honey should not stay any length of time in the super after being sulphured, as it makes it more difficult to bleach, and will be necessary to sulphur again. When I have a large amount sulphured I take it out of the supers and place it on the shelves to bleach, and clean it after it is bleached.

I neglected to mention in my article on bleaching comb honey, Aug. 15, that I place a board 1×3 around the bleaching-house half way between the lumber, next to the ground and the plate, and this I tack my cloth to. It takes two widths of cloth to cover from top to bottom. I also place bee-escapes in the four upper corners of the cloth, made of screen wire, and funnel-shaped, and these are tacked to strips of wood, and then nailed to the corner posts so they will stand very nearly upright. I should like to hear from some of our bee-keeping friends in the East if they have tried the process of bleaching comb honey, and what success.

L. J. CROMBIE.

Fallbrook, Cal., Oct. 8.

1083 LBS. OF HONEY FROM 5 COLONIES.

In answer to your question about the honey-flow, I will say that the 1083 lbs. from 5 colonies was all, but about 50 lbs., from sweet clover, with perhaps a sprinkling of white clover. The 50 pounds was from wild sun flowers or other fall blossoms and is not of a very nice flavor.

A suburban express hauled 600 pounds of bees for me by wagon from a Chicago R. R. station to Morton Park (7 miles) all for \$1.00. I didn't kick at all on this price.

Morton Park, Ill.

E. W. BROWN.

I wish some one of your subscribers would please tell me where I can find a good healthy bee country, with good schools, in a mild climate, where living expenses are reasonably cheap.

HENRY DETMERS.

Carlsbad, N. M., Nov. 16.

TONGUES, LONG AND SHORT.

We often see the question asked in the bee-papers, "Why will one colony of bees gather more honey than another one standing beside it, and equal in strength?" I should like to make a suggestion, that all who have two colonies in normal condition, and apparently equal in every way, and the bees of one prove to be extra good honey-gatherers, and the other poor ones, should measure the length of the tongues of both colonies, and see if the *good* colony has extra *long*, and the poor colony very *short* tongues. In this way we might prove beyond any doubt the practicability of breeding for longer tongues and shorter *stings*.

A. E. WILLCUTT.

Swift River, Mass., Nov. 8.

[Yes, send samples of the bees of each colony, marking the cage of one No. 1 and the other No. 2, but don't tell us which are the good workers. If, after the report is received from us, it appears that the long-tongued bees are the good workers, then we shall have good proof of what we already believe; viz., that long tongues and good working qualities go together. We shall also know that bias could not have influenced or affected the report.

So far the man who does the measuring knows nothing of the bee-keepers who send the bees, and, what is more, he is told to measure without fear or favor.—ED.]

FROGS IN FLORIDA.

Mr. Editor:—I am not much of a bee-man and that sort of thing, but I have a few bees, and hope I shall be able to keep them, and perhaps, by persevering, get a few more. Some time ago I began to hear of the frogs eating bees near here, but gave the matter little attention. We have had frogs here in countless numbers for the last year, and thicker than that when they can get at bees. I at first began to notice that the bees in some of my hives that I was building up were not increasing as they should, and couldn't see any thing the matter with them. One night, going out among them with a lantern I readily discovered where my bees were going. The alighting-board had a row of frogs all the way across the hive, and every bee that came near the entrance committed suicide. When a frog got all it wanted it jumped off, and another one was soon in its place. This disturbance made the bees come out to see what the matter was, only to feed frogs. All the hives were not so bad as this, but they each had one or more frogs at work all the time. Well, I studied how to fix them, for quite awhile, and finally decided the only way was to fence them out. I made a fence four feet high out of an old sail, which works finely for a temporary fence. I think the frogs could jump over it if they tried. They can jump a long way on the ground. I think a fence made out of common lath, $\frac{1}{4}$ inch apart, would be the best thing.

Now, we don't have frogs like this all the time. They have been bad for a year, and we have not had any before for 15 years; but any one can see that, in a little while, they will

weaken a small colony. In fact, I lost one hive from them. Any one who has frogs in his locality at any time had better look to his bees; and any one who has had any experience with them, I should be glad to hear from.

Nathan, Fla., Oct. 22. N. O. PENNY.

DO BEES, AFTER SMOKING, REDEPOSIT THE HONEY THEY HAVE TAKEN DURING THE SMOKING?

In answer to the question asked by A. B. Fish, page 810, if he will take a hive of dry combs and place it over a colony and quickly smoke the bees so that a good portion of them will enter the hive of empty combs he will find, on examining them a few moments later, that a good many cells already contain honey, showing that they redeposit the honey taken during their scare. Their first impulse when smoked seems to be to load up a supply for a new start somewhere else, and when the scare is over it is redeposited in the cells.

Udell, Iowa, Oct. 23. G. B. REPLOGLE.

[This is good proof; but here is more in the same line.—ED.]

On page 810 A. B. Fish asks if the honey with which bees fill themselves when smoked is lost or returned to the combs. I will relate one observation I made last summer of a somewhat similar condition. I have a small colony in an observatory hive, which swarmed out, except the queen, which was kept in by an entrance-guard, and they took every drop of honey they had with them. Certainly none was visible in the comb they had deserted. In a few hours after they had returned and become quiet there was more honey in the comb than I thought possible for so few bees to carry.

F. G. ANDERSON.

Wabash, Va., Oct. 22.

GIANT MIGNONNETTE AS A HONEY-PLANT.

I have had a little experience with giant mignonnette on sandy land, and find it an extraordinary honey-plant, as it is in flower this date, and grows large, shading the ground densely. I believe it will pay to sow this plant for honey, unless the seed is too expensive. It would undoubtedly be a good green fertilizer to plow under at the end of the season. Bees are working on the plant at this date. Will you tell us something about it in GLEANINGS, and the cost of the seed by the bushel?

S. J. YOUNGMAN.

Lakeview, Mich., Oct. 25.

[We have grown giant mignonnette; but, so far as I know, it has no value except for the honey, and I can not think it will pay you or anybody else to grow it for honey alone. It will cost as much to plant an acre as it will to plant corn or potatoes. Of course, the bees will do the harvesting; but I can hardly believe that the amount of honey will pay for the labor. Some very extensive experiments were made at the Michigan Agricultural College, Lansing, some years ago, with many of the most promising honey-plants, and I believe the decision was, every time, that it did not pay to grow any thing for the honey alone.

There is always a liability at almost any season that the bees will be getting honey profitably from other sources, and will scarcely notice the plant grown especially for them. No doubt the mignonnette will be worth something to plow under, but probably not more than some kinds of weeds that grow without any care or cultivation. We can furnish the seed in quantities at about 75 cts. per lb.; but after the first year the grower would have an abundance of seed at almost no cost at all.—A. I. R.]

DWARF ESSEX RAPE; ITS VALUE AS A HONEY-PLANT, EVEN AS FAR NORTH AS MICHIGAN.

I notice in your reply to J. H. Gilfillan, in regard to dwarf Essex rape, in last GLEANINGS, you say it does not blossom like ordinary rape. I don't know how the ordinary variety blossoms, I am sure; but the dwarf Essex variety blossoms and matures seed here in Southern Michigan all right. I know, because I have several bushels of seed I saved from a patch I sowed last year. I sowed it in August, about the last, I think. It grew some eight or ten inches high before winter set in, and stood there all winter, and came out in the spring as bright and green as winter rye. As soon as the weather warmed up it commenced to grow, and during July it was a perfect sea of yellow bloom, lasting a long time. I don't know as to its honey-producing merit, but my bees worked on it early and late. It grew from three to four feet tall, and branched out much like mustard. I cut it for seed in August, long before there was any frost. It is highly prized here for pasture for sheep and hogs, remaining fresh and green until very late in the fall. It is also good for cattle, but care must be taken not to let them eat too much until they become accustomed to it, as it is liable to cause bloat. S. H. MALLORY.
Decatur, Mich., Nov. 8.

MOTH-WORMS AND COAL OIL.

To destroy moth-worms in combs, and to keep them out, the plan that I have practiced is to dip the frame slowly into a can containing coal oil so that all the cells will get filled with it; then place it in the extractor, and turn briskly until all the oil is out. Raise the honey-gate and let the oil run back into the can, thus using the same oil over again until it becomes full of propolis, pollen, etc., so that it will not enter the bottom of the cells; then skim it off, saving the scum, which will make a good dope for harness.

Combs treated in this way, and placed back in the hives, the lid put on and set away in the honey-house, will not be interfered with by the moth for the entire season. This has been my experience. C. C. THOMAS.

Riverside, Cal., Oct. 15.

[Combs taken out of a hive that is free from worms and inclosed in a tight box or hive will be protected as long as they are inclosed. While the coal oil would keep moth-millers away from the combs, and destroy worms already in them, it would also have a tendency

to keep the bees away from them so long as the smell of the oil clung to them. Bees have an esthetic sense of smell, and I should suppose that your remedy would be worse than the disease.—Ed.]

MORE ABOUT THE GRAPE FRUIT, OR POMOLO.

On page 855 A. I. R. asks about grape fruit. We will say that 75 trees will grow on an acre. The tree grows like an orange tree and looks very much like an orange-tree. It is called grape fruit because the fruit grows in clusters. Pomelo is the proper name. A gentleman living near Sarasota, Fla., sold last year 12 boxes of fruit from one tree, and received \$12 00 per box. From the same tree he expects to get this year fully \$200 worth of fruit. The habit of growth of the pomelo-tree is the same as that of the orange-tree. The great demand for the fruit is principally on account of its medicinal qualities.

M. W. SHEPHERD.

Marchant, Fla., Nov. 6.



J. D. E., Ont.—I can not understand why the black bees should be attacking the young Italians raised from the queen introduced, as I never heard of a case like it before. The difference in race certainly could not be a cause for it. Without seeing the bees I should be unable to give any satisfactory reason.

W. I. F., Pa.—I can not understand why one colony in your apiary refuses to kill drones when all the rest are doing so, unless the colony in question has a drone-laying queen. The fact that they have eggs and larvæ doesn't disprove the supposition that she may be a drone-layer, although she may, earlier in the season, have laid worker eggs that would produce worker bees. Queens sometimes fail, and lay nothing but drone eggs. If the drones continue to be in the hive there must be something wrong, you may be sure. Some Cyprians are better honey-gatherers than many Italians. The trouble with them is, they are too cross to handle, and that is the reason why they are not advertised for sale. It is a good practice to feed bees in the spring; but I would never feed as long as they can get honey from the fields. At such times feeding has a tendency to cause them to neglect work outdoors, and fritter away their time indoors, taking feed that they do not have to work for. We send you a sample of alfalfa seed. Alfalfa does not yield much honey except in localities especially adapted to its growth, and where irrigation is practiced extensively. Take it out of its natural habitat it would not compare with any of the clovers in the East as a honey-plant. Indeed, it very seldom yields honey anywhere in the Eastern States, although it is grown to some extent.



Now is the season for bee conventions. Let all attend who can.

THIS winter is starting off with a great deal of snow and rain. This is favorable for young clover, providing we get enough snow.

It appears it was Mr. C. H. Pierce, instead of Mr. Leon Pierce, who took the picture of Mr. France "looking for foul brood." See pages 873 and 882 of our last issue.

THE case of Utter vs. Utter will possibly be heard some time during the latter part of December. Our readers may rest assured that they will have full particulars and a full account of the trial.

A GREAT deal of interest is now being manifested on the subject of queen-clipping. I did not suppose, when we started the discussion, that there were so many good methods. These will be described later in our columns.

I WONDER how many of our readers have their bees put up in good condition for winter. I am afraid there are some who are waiting for a "more convenient day" when they will have "plenty of time," and the temperature will be "just right" before fixing up the poor bees. Delays are dangerous during these days.

SAMPLES of bees are being sent us daily to have the tongues measured. So far there has not been a single case of good workers where the tongues have measured less than $\frac{1}{100}$; and in the generality of cases they run along about the 19 and 20 marks. The average tongue-length of ordinary worker-bees is between 15 and 16 hundredths. We have yet to find a case where extraordinarily good workers have had medium-length tongues.

WE are making preparations for our next issue, the Christmas edition. The half-tones, an extra number of them, will be printed on an extra quality of coated book paper. The series of articles on bottling honey will begin with that issue. There will also be a set of engravings showing the tongue of a bee as seen under the microscope, and how measurements are made. The series of Ridgpole Musings will continue as begun in this issue.

WILL those who send bees, the tongues of which they desire us to measure, be kind enough to send live specimens? We can not do much with dead bees, as the tongues are apt to be shriveled up, and it is practically impossible to get any thing like a fair measurement. With live specimens we chloroform them, and this causes them to protrude their

tongues to their greatest length; and while thus stretched out the tongues are laid on a graduated scale and measured from the mouth parts to the end of the tongue.

BEE-KEEPERS' INSTITUTES IN NEW YORK.

THERE will be a series of bee-keepers' institutes in New York, as follows: Batavia, Dec. 12; Canandaigua, Dec. 13, 14; Romulus, Dec. 15; Auburn, Dec. 17; Johnstown, Dec. 18. Bee-keepers living in the vicinity of these institutes are urged to attend and take an active part in the proceedings. The editor of the *Review* and of GLEANINGS expect to attend these meetings with a stereopticon.

A BEE-CELLAR BLASTED FROM A SOLID ROCK.

MR. C. H. PIERCE, referred to elsewhere in this issue, has blasted a bee-cellar out of solid rock. The roof of this cellar is 10 feet thick; the side walls are 4 rods thick, and the rear wall is about 40 rods thick. Mr. Pierce writes that he had to use dynamite, and blast a hole in the east end of a sandstone bluff. I have no doubt this will be a good cellar, and we should be glad to have Mr. Pierce inform us as to how his bees winter in such a cellar.

HOW TO FEED IN THE DEAD OF WINTER, AND HOW TO MAKE GOOD "GOOD" CANDY.

IF a colony runs short of stores, and you have not good combs sealed, give them a big chunk of Good candy kneaded into a stiff dough. Mix pulverized sugar and warm honey. Stir with a big spoon or a wooden paddle. Keep stirring in sugar till it is so stiff it can be stirred no longer. Dust the hands with pulverized sugar, and also the molding-board; then mold and work till the dough is stiff and hard. Let it stand in a warm room; and if it runs slightly, knead in a little more sugar. Place a chunk of the dough, about as large as the doubled fist, over the cluster, then tell the bees to "go Gallagher." It will hardly do to feed sugar syrup so late as this in most localities above the 40th parallel.

MORE RECORDS FROM LONG-TONGUED BEES.

THE evidence is still piling up, to the effect that long-tongued bees are the ones that get the honey. D. R. Keyes, of Dixie, Ga., mails us a cage of bees which he says are from "the best working colony I ever saw, by far," in all his experience of 18 years. The tongue-reach measurement shows $\frac{18}{100}$.

Again, another correspondent, J. H. Gerbracht, of Spring Grove, Ill., sends a cage of bees, with a tongue-reach of $\frac{19}{100}$. These bees produced 240 lbs. of surplus honey. While Mr. Gerbracht does not consider this amount as any thing remarkable, yet the record of this colony, in contrast to that of the other colonies, is "rather startling." In this connection he says that, the season before, he made the mistake of requeening almost his entire apiary from a five-banded breeder, which bees, to use his exact language, "turned out to be the most worthless lot of bees I ever saw."

Continuing he says, "The great advantage of long tongues, aside from the clover question, is in the fact that in a locality like this, at least, their greater reach enables them to gather enough when ordinary bees are getting nothing. . . . When honey does come in freely, they (the long-tongued bees) make the most of it without thinking of swarming; while the ordinary colonies with the hives partly filled with brood commence storing below, and soon try to swarm, with the result, of course, of wasting the whole flow."

The average tongue-reach of ordinary bees, as I have pointed out, is from $\frac{13}{100}$ to $\frac{16}{100}$; so it will be easily seen that, with the testimony I have produced, bees with long tongues are the very ones to get the honey, and I should not be at all surprised if *all* good honey-gatherers were *also* long-tonguited.

It is apparent that Mr. Gerbracht, in queenening with five-banded bees, expected to get a superior strain; but his experience is not much different from ours, with the further fact that the average yellow bees "sting like fury," and are almost the first to succumb during winter.

THE ONTARIO CONVENTION; IS THE STEREOPTICON TO BE BARRED OUT BY THE CUSTOM HOUSE?

CANADIANS will remember that the Ontario Bee-keepers' Association will hold its annual meeting at Niagara Falls, Dec. 4-6. I am expecting to be in attendance at this meeting with my stereopticon; but it begins to look now as if the collector of customs in Canada will not allow my instrument to go through the lines. It has been the rule that guns, bicycles, and the like, could be taken across by paying a deposit of 25 per cent of their value, this deposit to be refunded on the return of the article and its owner. But in the case of the stereopticon it appears there may be an exception on the ground that it is considered a money-making affair, and should, therefore, be taxed without a refund. But in my case, at least, there is no money in it to me, nor is there to be an admittance fee charged; and as the Ontario Bee-keepers' Association is fostered by the Ontario government, I hope it (the Association) can make such arrangements as will permit of the instrument being used for one night only, and within $\frac{1}{2}$ mile of the American lines. I have some very choice slides which will be exhibited if I can get the instrument through.

Later.—I am pleased to announce that a permit to take the stereopticon and slides across the lines has been secured, and that I will be on hand as scheduled.

GLEANINGS FOR 1901.

I DO not wish to set before our readers any extravagant promises as to what we shall do in the future; but during the coming year I expect to have a series of symposiums on various questions. One of these symposiums will take up the subject of bottling honey, and continue on, perhaps, through several issues. The knowledge of how to bottle honey

and keep it from granulating is a very important one. Nine-tenths of the bee-keepers of our land do not know how to fill a gross of Muth jars without wasting labor and honey. Some do not know how to remelt candied honey without spoiling its flavor; others are not expert in putting in corks and making a hermetic sealing. Mere cork alone is not an air-tight substance; and the only way to prevent honey from granulating is to dip the corks in a preparation of paraffine, wax, or rosin before they are inserted in the bottles. It is another trick of the trade to put on tin-foil caps so that the bottles of honey will look as neat and attractive as the ordinary pickled goods we see on the market. Then there is the matter of selecting and putting on a label neatly. The question whether honey should be melted in a large vat, and poured into the bottles while hot, or whether it should be poured into the receptacles cold, and then heated to the required temperature, is important. If the latter is the better plan, how shall it be done? All these and a hundred more nice little points will be answered in the forthcoming series of articles. Many and many a bee-keeper might add two or three cents net to the price of his extracted honey if he only knew *how* to cater to a fancy trade for bottled goods; and if we can help him to realize this extra price, we shall feel that we have been amply repaid for our trouble.

There will be another article or articles on how to refine beeswax without the use of sulphuric acid, and how to get every particle of the wax out of old combs. We expect to show soon how one can make good wages by refining wax by a new plan.

Another set of articles will detail the very latest methods of queen-rearing. Some very short cuts have been discovered during the past season, and, so far as I know, have not yet been made public. Among the writers will be Mr. Pridgen and Mr.—I dare not give his name yet except Swarthmore, for that is his *nom de plume*.

As before, we shall make a large use of half-tone engravings, and these will be printed on coated book paper. Unfortunately, our last car of paper was much below the standard, and some of our engravings have suffered in consequence. But we hope that, next year, we shall be able to present our readers something that will leave nothing to be desired. Taking it all in all, we feel very sure that the investment of the small subscription that we ask will pay a big dividend. The one set of articles that we shall publish, for instance on bottling honey, will be worth many times the subscription price, to say nothing of the other good things that will be given from time to time. We take the *Inland Printer*, one of the finest if not the very finest exponent of its class—indeed, of any class—for beauty of topographical work and fine engravings. There is hardly an issue of it that comes to us but that we get something out of it worth more than the mere subscription, and in a year's time we have picked up enough hints to make it one of the most valuable investments we make.



But he turned and rebuked them, and said, Ye know not what manner of spirit ye are of. For the Son of man is not come to destroy men's lives, but to save them.—LUKE 9 : 55, 56.

But he said, Nay ; lest while ye gather up the tares ye root up also the wheat with them.—MATT. 13 : 29.

Some years ago, when our National convention was held in Buffalo I formed a very pleasant acquaintance with Mr. Orel L. Hershiser, and from that time to this I have planned writing up a very interesting 50-mile wheel-ride I had with Mr. H. and with Mr. Frank Benton ; but other things seemed to crowd it out. Just now I wish to mention a little friendly talk I had with my good friend Hershiser during the trip, or perhaps I had better say a little friendly rebuke or suggestion I received from him. We were talking about these very Home Papers and my lifework in combatting the evils of the present day. Friend H. said something like this :

"Mr. Root, let me say first that I agree with you in the stand you take against the tobacco habit ; but I sometimes fear you are a little hard on humanity. You can not bring the world up to your standpoint, but of course you can do a great deal. Now, may I suggest a way in which it seems to me you might do still *more* good—that is, from the standpoint at which I look at these things? In this great city of Buffalo I meet with many experiences that perhaps you do not ; and many times the best of us are in a dilemma as to what is the *best* thing to be done. Let me give you one instance. A large manufacturing company for whom I do a great deal of work in my profession as lawyer, often requires the services of an expert draftsman. In building expensive machinery or buildings to contain such machinery they want a man who will lay out the work for the mechanics, taking in every detail and contingency in such a way that there will be no blunders and losses in consequence of mistakes on the part of the mechanical draftsman in laying out the work beforehand. Not only hundreds of dollars but sometimes *thousands* depends on the accuracy, skill, and fidelity of this man who puts the work *first* on paper. Well, they have found just one man who comes up to the mark. Give him time, and every thing he wants, and he will furnish the draft complete in every respect, and almost without mistakes—that is, so far as *he* is concerned. Now, this man is an inveterate user of tobacco. When he really gets to going, with his mind all absorbed in his work, he fills his mouth with tobacco, and from time to time squirts the juice right and left all over the floor, and may be all over the furniture. They have provided him with plenty of spittoons ; but when he gets really absorbed in his mental calculations, he forgets all about the spittoons, and just expectorates everywhere. They have remonstrated, and begged of him to leave off his uncleanly habits.

He acknowledges his faults, and promises to do better ; but when he has a really difficult job, especially if they hurry him up so as to have it ready in a given time, back he goes to his old fashion ; and, rather than interrupt him, they let him go on. If they give him his own way, and do not bother him, his work comes out all right. His employers are, generally speaking, clean men, and they have hunted the city over and tried the best men who could be found ; but after they have footed the bill caused by expensive blunders and stupidity they have finally gone back to their regular man ; and as they can not really do any better, they let him go on after his old fashion. Now, what are you going to do in a case like that? Shall we not take the world as we find it, and put up with a good deal, especially when, as it seems, a good many times we can not, take it all around, better ourselves very much? This tobacco habit is, I grant you, a bad thing—yes, it is a *fearful* habit. But there are worse things than tobacco."

This is not particularly new to me. I have seen the same state of affairs a good many times. Recently I was visiting a fruit-grower, and became somewhat acquainted with his hired man. My friends, most of you know something about "hired men." This same fruit-grower was telling me about having a man plow, a predecessor of the one he has now. It was in the spring, when every thing was hurrying. His wife looked toward the field one day, and did not see the horses come around as she knew they should come once in a while. She finally went down to the field, half a mile away, to see what the matter was. The horses were eating grass by the fence, and the hired man was asleep under a tree. He calculated he was so far away from the house, and out of sight, that nobody would know any thing about it. I think I will add, on my own responsibility, that very likely he was out the night before pretty late. Well, the man I noticed was an unusually faithful, honest fellow. He was the first one up in the household. I noticed him crossing the road with his lantern, quite a spell before the break of day. The stock were properly cared for, and the horses were ready to go to plow just as soon as it was light enough to see. This man got up thus early of his own accord. He never had to be called. When a storm came up so he could not plow he did not stand a minute looking at the clouds or the weather. He got his team under the shed, then selected a piece of timber he had probably saved up some time previously, and did a very neat job in the way of repairing the wagon. He was handy in the use of tools, and he went to work and repaired breaks, without a word from his employer. One afternoon I ran across him on the other side of a hill, out of sight of the house. He was cutting fodder corn. I stopped a while and began to figure out how I should manage if I were in his place to get the work along as fast as possible. I soon discovered that he had worked at the same problem. He managed so as to save steps. He took as big an armful as he could carry, and he hurried the work along just as if he owned

the place, and had some particular reason for wanting to finish the job up before dark. I told my friend he had better keep *that* man if he could; that he might try a good many before he got one that was his equal.

Now, I should like to stop right here, for it would be very pleasant to bestow only words of praise on a young man whom I admire and respect; but it would not be truthful to leave the story right here; and, besides, I should not bring out the thought of our text. With all his good qualities this capable young friend is an inveterate user of tobacco. He made me think of the mechanical draftsman. He not only smokes outdoors, but he smokes in his own room until that part of the house is—perhaps I had better be gentle, and say *perfumed* with the weed. There are young boys in the household who may be induced to follow his example. Yes, and there are young ladies who are obliged to endure the smell of tobacco. They have not complained, not one of them; but I do know that this man would get more pay if he had all his other good qualities and did not use tobacco. Now, some of my readers who smoke and chew may say, "Why, Bro. Root, you are unconsciously putting in a great plea in *favor* of tobacco. How do you know that the two men you have mentioned are not both *capable* of greater endurance, mental and physical, because of the stimulus of the narcotic?"

I have thought of that, dear friends, and I have watched it closely. Thank God I have seen just such men break away from the tobacco habit, and I never saw one who lost vim, energy, skill, or endurance by the change. But the main thing we are discussing just now is, "What shall we do with cases like these?" What would *Jesus* do? I think he would take mankind as he finds it; and instead of combatting and arousing fierce opposition by an unchristianlike way in rebuking sins he would first win the man's respect and esteem, and, if possible, his confidence and friendship, and then leave him, at least to a great extent, to make a direct application of his sayings.

It is not only the men who have been tried and perhaps sorely vexed with the hired help, but our wives and daughters are having similar trials. In the present state of society, help in the home as well as on the farm is almost a necessity; and, oh dear me! what stories we hear about hired girls! Some of them are jewels along certain lines; but, the first thing you know, there is a sad defect somewhere. When we hear the story of it we are *tempted* to say, "Well, I would not have *such* a girl on the premises over night." Then the good housewife tries another one. The new one is, perhaps, all right so far as the fault of her predecessor is concerned; but, pretty soon, out crops another one, may be worse than the first. Shall we try again? My dear brother and sister, I have grown *gray* in trying to solve these problems. If you turn a boy or girl off and hire somebody else, as a rule you do not make either of them any better. Then the question comes up, "What are we here for?" Did God place us here to live a human life just to have us learn how to get along easily, with-

out care or worry, or did he put us here to help lift the burdens that rest on humanity? If you succeed in getting one of these boys or girls to recognize their sinful ways, and to set about overcoming their bad habits, then you are saving a soul from sin—you are doing missionary work without going to Africa, India, or China. "He which converteth the sinner from the error of his way shall save a soul from death, and shall hide a multitude of sins."

I often advise men and women to keep their hired help in *spite* of grievous faults. Sometimes a woman will say to me something like this: "Mr. Root, would you advise me to keep a girl who looks me square in the face and tells deliberate lies?" Before answering the question I usually ask a lot of others. If the girl has redeeming traits, and there seems to be hope that she may be partially or entirely cured of this terrible sin, I would say, keep her; and I have even gone so far as to advise keeping a man who steals. Keep temptation out of his way. Exhort him on general principles to be honest and upright—that is, while you lack absolute proof of his stealing. Pray for him day after day, and you may some time have one of your pleasant surprises by discovering that your prayers are being answered; and in regard to the hired-girl question, dear sisters and mother or daughter, do not be *too* exacting. Pray for grace and wisdom. Ask God every morning to help you not to expect too much of the girl in your employ. Watch for her good qualities. Encourage her in developing them. Hold these up before you instead of dwelling too much on the shortcomings. Remember we are all selfish and sinful in God's sight. Breathe often the little prayer, "Forgive my debts as I forgive my debtors." Ernest once said, "Father, you must not expect every one to be sound all around. The very best men in the world have some lamentable weaknesses; even our college professors—men who should be above reproach—now and then not only show folly but *sometimes* downright wickedness and sin. You will find it in everybody. Do not be too hasty in condemning. We must 'size a man up' and try to let his general good qualities overbalance his infirmities in certain directions."

Dear friends, what I have to say in closing I try to say with reverence and respect toward the chief magistrate of our land. Some little time ago I was overtaken by a storm while out on a wheelride, and stopped at a farmer's. He knew me by reputation, and he was anxious to have my opinion on the political issues. He had been reading the papers, and was pretty well informed. He was a man of excellent physique, and seemed to have a very good general all-around judgment and perception. He was a very loyal and strong defender of the present administration. When I told him how I felt troubled in regard to the matter of intemperance in the army he said something like this:

"Mr. Root, we all have our opinions in regard to these matters. I may not be right; but these things you have mentioned in regard to the attitude that the President has taken

toward the army canteen is, it seems to me, a small matter compared to other issues—yes, an exceedingly small matter.”*

Now, I need not tell the readers of GLEANINGS how I feel about this thing, for I have told it already; but is it possible the truth, or the wisest course, lies somewhere between myself and the old farmer? When anybody suggests that intemperance throughout the world is a small matter compared with other things or other issues, if you choose, there is a strong tendency in my breast to get all stirred up and to become vehement. But God knows I want to do what is right in his sight. Is it possible that we temperance people will do *more* good by submitting, at least for the time being, to this terrible thing rather than go to too great extremes in stirring up matters? May God give us light and wisdom.

In looking over the world, and in getting the views of the best men and women I know of, it has seemed to me as though the general tendency is to—well, let us say to do about as our good friend Herschiser said the great manufacturing concern did in regard to employing a mechanical draftsman. They decided to keep him until they could find somebody else who did somewhere nearly as well, and who did *not* use tobacco so “recklessly.” Everybody has met these problems. We have got to meet them at home—yes, oftentimes with our own children. And, by the way, of all the sad quarrels this world presents, there is none so sad, as it seems to me, as a quarrel, or, if you choose, even a disagreement and a difference, between parent and child. Dear father and mother, do not be too severe and exacting with your own children, especially when the

*Since the above was dictated, a vivid illustration of the harm we may do by demanding that everybody, especially every Christian worker, shall come up to our standpoint (or our ideas, perhaps I had better put it, of how things should be), has come to light. The W. C. T. U. of the State of Ohio has a department pertaining to the use of narcotics. At the head of the department for this very State they have had, until very recently, a most energetic, vehement, and successful worker of great ability. Well, somebody discovered that this good woman's husband was growing to *accuse* his farm. You may all say it was a bad state of affairs—the wife leading a reform movement for the whole State *against* tobacco, and her husband growing crops of it year after year. There was a great deal of murmuring, and finally she thought best to resign. She did so at a critical period, when a law was about to be passed against the traffic in cigarettes. With her ability, energy, and vim, the law would no doubt have carried; but the Christian people put in another good woman, whose husband did not grow tobacco. They gained something in one direction, anyhow; but the new officer, although her intentions were all right, did not seem to have any aptitude for the office. Perhaps we may say, as the boys do, “She was not built that way,” and the cigarette-dealers carried the day. Some may say this woman should have made her husband give up growing tobacco. Well, this might be almost like the disciples who asked the Master to call down fire from heaven; and it might be a bigger job, too, than pulling the tares out of the wheat. The husband did not see fit to meddle with the wife in her work against narcotics. She might, of course, use all her womanly influence to get him to stop growing the crop. Failing in this, would anybody advise her to get a divorce and break up the family? God forbid. It is an easy thing to look over the fence and decide what your neighbors ought to do; but were you to stand in their shoes a little while, may be you would do as they do, and at the same time do the wisest and best thing. I am glad to add, a most faithful and efficient lady now has charge of this department of the W. C. T. U. work.

boy or girl approaches the critical period in the “teens,” when they come to that dividing line between childhood and manhood or womanhood. May God give us grace and wisdom. Of course, you are not to let things drift or go. I would not have you let up one single iota in watching and praying and exhorting and entreating; but, dear father and mother, *whatever* you do, strive to do that which will make things *better* and not worse. Jesus told the disciples not to pull up the tares, for, even if the tare *was* destroyed, it might result in *more harm* to the wheat, and so they were to let it grow; and when James and John thought it a proper thing to do to call down fire from heaven, and consume the foolish people who would not receive them, he replied in the manner of our text, “Ye know not what manner of spirit ye are of.” Then he reminded them that he came to this world—in fact, his *mission* here was—to *save* men, *not* to destroy them. Now, shall we not, as his followers, be very careful—yes, exceedingly careful—that we do not destroy more than we mend. We are all liable to get stirred up by some little thing. God knows it is my besetting sin, and I fear the temptation will follow me to the end of my life. Let us beware of *Satan* along this line. He is not at all slow in suggesting that we should be doing Christ's work in setting our foot down as to what the children shall or shall not do, or in ordering the hired man or hired girl to “to get right off the premises,” for I am told that is the way they sometimes do it. If you really feel as if you must dismiss your hired help, do it gently, and do it kindly. Do not be in haste. Tell them pleasantly that you will give them time to find another situation, and then shake hands in parting, and part good friends. You may want to work together again some time; and, oh it will be so much pleasanter—so much more Christian-like—to bid each other good by in a friendly way when you meet again! Yes, I would say this even if the hired girl has been telling you *lies*, or if the hired man has been stealing your property—that is, where you can not really prove it. Keep up pleasant terms, even with a bad man—that is, so far as you can do it without compromising Christian dignity and integrity. And finally, dear brother or sister, hold fast to that old well-worn text that the world scarcely even *yet* gets a glimpse of: “Love ye your enemies; do good to them that hate you; bless them that curse you, and pray for them that spitefully use you.”



Along in the middle of November, whenever the roads are fairly good, I try to take as many wheelrides as possible before wheel-riding is done up for the winter. One day, about the middle of the month, while I had this idea in mind, the following came on a postal card:

Mr. Root :—Please send us 2 lbs. Grand Rapids lettuce seed, put up in 1-lb. packages. C. Z. YODER.
Weilersville, O., Sept. 5.

I remembered this same Mr. Yoder had been ordering every season unusual quantities of Grand Rapids lettuce seed. Weilersville is a little bit of station about a mile and a half from Smithville, where, you will remember, I visited the pickle-factory and wrote it up. Now, the question in my mind was, "What does this man Yoder do with Grand Rapids lettuce seed by the pound? If he sows it all he must be quite a lettuce-grower; and I do not think he can be in the seed business, because I should have heard of him;" and I resolved to take a wheelride down to his place whenever the weather was even fairly promising. Accordingly, one afternoon when the sun came out, and the roads were fair, I started off expecting to reach the place before dark. I had not calculated, however, for the short days, and it was too dark to see to ride comfortably when I reached a spot out in the country, near where I was told Mr. Yoder lived. Of course, I was watching for greenhouses and cold frames extensive enough to take care of the plants that a pound of lettuce seed would produce. Sure enough, on looking over toward a farmhouse back in the lots I was rewarded for my long ride. Four greenhouses, each 150 feet long and about 25 feet wide, with the glass glistening in the moonlight, met my view. Just back of the greenhouses was a large red barn overhanging the stables, just such as we see belonging to thrifty farmers. Near by was a very pleasant country dwelling. A young lady was just carrying in a pail of milk, and in answer to my inquiry for Mr. Yoder she said he had gone west on a visit, and would not be back for several weeks.

"Well, I am A. I. Root, of Medina. I do not know whether you people know me or not. I should be glad to see whoever it is, belonging to your family, that has charge of the greenhouses."

"Oh! yes, Mr. Root, we know *you*, and are exceedingly glad to see you, although father is away. My brother will be delighted to talk with you about the greenhouses, and mother will rejoice also to see you in our home."

In a few minutes I was ushered in with something like the following:

"Mother, I know you will be very glad to know that Mr. A. I. Root is actually here in our own home."

It did me lots of good to get such a welcome from people I had never seen before. As it was already after dark I felt a little backward about intruding; but the mother and daughter and three boys soon made me feel quite at home. I wonder if all country homes set such a bountiful table for their evening meal.

The eldest son, who managed the greenhouses, had just been having trouble with the lettuce-rot. After supper we went out with a lantern and looked over the plants. The houses are built purposely for lettuce, and no attempt is made toward ornament. The beds are right on the ground, and the sashes along at the eaves are so low down that one has to stoop over to work among the plants. The

seed is grown in flats, and transplanted in flats. In fact, the whole thing is managed a good deal like the lettuce-growing at the experiment station at Wooster, which is only five miles from Mr. Yoder's. The plants are watered by simply setting the flats in a water-bench and then lifting them out again. From the flats they go right into the large beds, which I think must be about 12 feet across. They work on these beds sitting or kneeling on a wide stiff board. This board is kept above the plants by two or more pieces of 4x4 scantling. To make it easier on the knees the board is cushioned on the upper side. After the plants are set, the ground is stirred and weeds kept out with a hoe having a handle some ten or twelve feet long. This will reach clear over under the eaves, so you see there is not much need of standing up where the glass comes down low near the plants. There is also an advantage in having a glass come near the plants.

Now about the lettuce-rot. This is a common difficulty, especially where lettuce is grown season after season on the same ground; and it just now occurs to me that I got a hint from Eugene Davis I forgot to mention during my recent visit to his place. His lettuce seed is all grown in pure sand, and the seedlings are transplanted into a bed of pure sand and nothing else. No manure or fertilizer of any sort is used. After his transplanted plants have got good strong roots, they are planted out in beds made very rich with stable manure. In this way they seldom rot, for rot usually commences when the plants are small. The first symptom is seen in the roots. They turn black; but so long as these roots are grown with just water and sand, they are perfectly healthy; and a good strong thrifty plant will seldom take the rot before it reaches maturity.*

Well, at friend Yoder's we had an object-lesson that pointed very clearly in the direction that the rot is the effect of strong manures. They had just purchased a carload of pigpen manure from Chicago. In order to get a good big strong growth they put this manure on to the end of the beds nearest the door, pretty liberally; and another thing, it was not chopped into the ground deep enough and with sufficient thoroughness. Our plan is to mingle the manure and soil by shoveling it through a coarse sieve. Well, where they put this strong manure in, more than half the plants were lost by the rot. Where they put

* Since the above conversation with Eugene Davis we have sown a plot of seed in pure sand and one in a mixture of sand with sifted jadoo fiber. That with the jadoo fiber goes away ahead of the other; and my impression is, the plants will be as safe against rot as in pure sand. The jadoo has been exposed to a temperature so high as to kill all weed seeds and any sort of fungus that might produce rot. Its fertility is owing to chemical fertilizers that are boiled into it; therefore it would have none of the property that stable manure sometimes or always has that might start rot. My impression is, we can well afford to use a certain amount of jadoo, say half and half (in *bulk*), or less, with sand, for starting seeds, and perhaps, also, for the first transplanting. The only objection to the jadoo would be its expense; but when we take into consideration how very light it is, and that a single pound makes quite a large bulk, the price, 2 cts. per lb., by the bag, may not be an objection for growing Grand Rapids lettuce under glass.

on less there was not so much of it; and where they did not have enough to reach, there was none at all.

Our older readers may remember that my first glimpse of the Grand Rapids lettuce was by the light of a lantern; and ever since then there is something exceedingly fascinating to me in viewing a lettuce-house by lamplight. The four houses are warmed by steam. The steam is produced in two cheap second-hand boilers—at least I think they were second-hand. I told them their boilers were not very economical of coal; but as they are located right in the coal regions where coal is very cheap it did not matter so much. The boys and their father did their own piping, thus saving a great expense. Of course, they had to learn some lessons by cutting and trying before they learned the kinks of heating by steam and hot water.

I wanted to get over to the experiment station bright and early; but during the night the ground was covered with snow. My young friend generously volunteered to take me and my wheel over to Wooster; but I told him I would first try and see if I could not ride such a short distance in spite of the snow; and I got on very nicely with my gear-case covering the chain. Now, these good people not only have a greenhouse to work in during the winter, but they grow small fruit. I think they have two acres of strawberries, three acres of raspberries, as many or more of blackberries; ten acres of peach orchards containing some very nice good-sized trees. They have never yet had a crop of peaches. They do not feel troubled, however, for one fair crop will probably pay all the expense of the outlay. Of course, I promised to call again when small fruit is being harvested. And, by the way, I do not think I ever saw a cleaner strawberry-patch than I found here in November.

After having had a very pleasant visit with Prof. Green and Prof. Thorn, and a hasty look through the greenhouses, I started off. I had in my overcoat pocket, however, some slips taken from the greenhouse, of a new weeping Lantana and a new Ageratum and some other plants.

On top of the hill just north of Wooster I found a beautiful new greenhouse just in process of construction. It belongs to Prof. Thorn's son, who is building it purposely for growing Grand Rapids lettuce. It embodies all the latest improvements, and will probably be a model structure, especially as young Thorn has his father, and the benefit of the near-by experiment station, to advise and suggest.

I hope our readers will pardon me for saying that I look on this lettuce industry with a great deal of pride and satisfaction, especially when I remember that I not only introduced the Grand Rapids lettuce and its method of cultivation to the world, but I also gave it its name.

I have thought for several years that the business would certainly be overdone; but somehow or other I have never heard of anybody who grew a nice crop and could not find sale for it. Of course, the price sometimes

gets down pretty low. It is an industry that anybody can work at during odd moments, and it is something, too, that the wife and children can all share; for if the temperature of the house is right for the plants it is just right for children, young and old; and I think growing plants under glass is just about the nicest business in the whole wide world.

I started from Wooster just about noon for a ride of about 30 miles before dark. Pretty soon it began to snow; but as the soil in that direction is more or less sandy I got along very well. But it snowed harder and harder; in fact, the snow stuck to my clothing until it made me so heavy I was obliged to get off the wheel now and then and shake myself to get rid of the surplus weight. I am afraid some people who passed me thought I was to be pitied. Bless your heart, I was having more real solid enjoyment than anybody I passed, indoor or out. At Creston the snow was so deep, and my wheel slewed about so much, I rounded up at a station; but when I was told I should have to wait two hours for a train that connected with our own road, three miles east, I concluded I could stand the snow better than I could to sit in the waiting-room for two hours. So I wheeled about and went three miles further, straight northeast, to Seville, through the mud and freezing slush. As the rest of the ride was through a clay soil I concluded I would have to wait for the train on our road. I thus avoided the necessity of changing cars, you see. I spent about half an hour in slicking myself up, shining my shoes where the mud was thrown on them, then slept half an hour in a very pretty nice new hotel in Seville. Let me say I went into the hotel, asked for a drink of hot water, a place to take a nap, and borrowed an umbrella, and made myself generally at home all around the premises; and yet the obliging proprietor and his wife would not take a penny. Now, when you find fault with hotels because they are not just perfect in every respect, you should remember the amount of service they do that they do not get any pay for. Well, after my nap I took the borrowed umbrella and hunted up a greenhouse, and thus passed the time very pleasantly until train time.



A NEW BEAN.

Last spring we received a very small packet of beans for trial, from F. B. Mills, Rose Hill, N. Y. The packet was labeled "New Bean No. 6." The whole number, I should think, did not exceed a tablespoonful, and these were planted with a lot of other beans for a test. I think it made a row perhaps two rods long, and may be more. When they began to blossom we noticed the row was loaded with pods away ahead of every thing else. When these beans were ripe enough to shell

we cooked one mess of them, and they were so delicious I told the boys to save some of the ripest pods and plant them, and see if we could not get a second crop. They did so, with the following result: First crop, 1½ quarts besides what we cooked. Second crop, 3 quarts. We might have planted a good large patch of the first-crop beans, but I had little faith they would ripen before frost. To my surprise they ripened up dry almost a month ahead of any killing frost; but the frost this year held off till the first week in November. Well, now, these beans are not only excellent in quality, but they are wonderfully prolific. They are small in size, it is true—not very much larger than a common Navy or pea bean. They are dwarf in habit, and might on that account be used for forcing under glass. My impression is that we could grow two crops on the same ground in any ordinary season, and I think they would make a prodigious yield per acre. Mr. Mills informs us the new bean has been named the Prize Winner, and that they have already given a crop of 40 bushels to the acre.

While we are on the subject of beans, here is a report from one of our employees:

From one quart Davis wax beans planted, I picked over 7 bushels of fine string beans. From one quart Burpee bush limas planted, I picked over 70 quarts of shelled beans, besides several quarts dry, not yet shelled. The above were never hoed—were cultivated twice, and weeds hand-pulled near the plants.

Medina, O., Nov. 13.

BERT WASHBURN.

The above is not only high pressure gardening, but it is good crops with very little work. Out experiment stations once made a test to see how much difference there would be in a crop by keeping the ground mellow, or simply scraping off the weeds with a hoe to keep the crops clean. They were surprised to find very good results without so much cultivation. But the outcome of such an experiment depends very much on the amount of rain we get. During the past season all kinds of beans have made a remarkable showing in our locality, because, with the exception of a short time in the spring, we have had almost all the rain needed all summer long. At such a time, pulling the weeds by hand would do almost as well as hoeing. When it comes to a scarcity of rain, however, a constant stirring of the surface of the ground might make all the difference between a good crop and an entire loss.

MUSKMELONS AND CANTELOUPS.

A. I. Root:—Can we grow as sweet and well-flavored canteloups in the North as we get from the South? I grew some this year for the first time, and, even when they were ripe, they did not taste like muskmelons.

What variety is the best flavored? Please tell us something about muskmelons in your talks on gardening.

Cokeville, Pa., Sept. 13.

JOHN MAJOR.

Nice sweet canteloups can be grown almost anywhere if you can manage to avoid blight. While a sandy soil or sandy loam is best, we succeed in getting nice melons almost every year in our Medina clay. I think yours must have blighted before they were fully ripe. In this case they would taste as you describe. Make your soil rich with old well-rotted manure. Work it up deep. Get the melons in

early; and if they grow right along you will be pretty sure to have good ones. Stirring the soil so as to break up the crust after every rain has very much to do with making a success. Some of the finest melons I ever grew are secured by stirring up the soil with a sharp garden-rake clear down until I could see the white roots. This was done every time a big rain packed the soil again. It is hard telling what the best varieties are. The variety named Rocky Ford has a great reputation, and I think it will be safe to plant the Rocky Ford melons. The Fall Rose, which we have advertised lately, is also a very fine one. As seasons vary, I would make plantings both early and late. We have had fine canteloups some seasons from seed planted in June; but a good deal depends on having timely rains. But don't give up, even though your soil is not specially adapted to melons. We have this season also produced nice watermelons, even though they are not adapted to our clay soil. The Miller's Cream canteloup is very sweet and very early, and will succeed in almost any soil; but the Extra Early citron we advertise is probably the *earliest* of all.

COLEI, ACHYRANTHUS, ETC., IN THE FALL.

I think I said in June and July that I had not seen any really fine coleus-beds this season. Our own, on our grounds, were dull in color and slow in growth. When I visited Chicago I did not see any fine ones in Lincoln Park, and none on Vaughan's grounds. Not long afterward, however, I discovered the reason. The weather had not been warm enough, and we had not had sufficient rain. In Canada I saw some fine ones, and during August and September I think we have had the most beautiful golden bedders, and achyranthus for contrast, that I ever saw anywhere. Under the influence of abundant rain and exceedingly warm weather the plants made an astonishing growth, and in brilliancy of color they eclipsed anything I had ever seen. I asked one of the florists when was the proper time to make cuttings of our choicest plants to be wintered over in the greenhouse. He said we could make them any time in September; that they usually cut their largest and finest plants all into little bits just to make cuttings. Well, one day we moved our little cutting-bed (a frame with a glass sash hinged to it) out in the open ground. It was set over a bed with two or three inches of common river sand; then the cuttings, perhaps 100 in number, were taken from our best plants, and put about an inch apart all through the frame. In three or four days every cutting had taken root, and the little frameful, perhaps 15×30 inches, was just a thing of beauty. It gave me a thrill every time I lifted up the lid to look at the plants. We proceeded just as we did in the winter time, to get cuttings. The cover to the box is just simply a pane of glass with a frame around it. This shuts down tight so as to preserve the moist atmosphere inside; and when the sun shines, a frame of cotton cloth is laid over the glass so the heat will not be strong enough to scorch the plants. Our finest red or purple plant is the *Achyranthus*

lindenii. Then we have some deep-red coleï for a contrast to the golden bedder. These beautiful foliage-plants, when grown to perfection, are to me fully as handsome as any flowers in the world; and when you once get the hang of it, it is the easiest thing in the world to get rooted cuttings by the dozens or hundreds. Now, please do not ask me to sell or give away these plants I have mentioned. With all the business on our hands we really can not do it—at least not now. You can get them of our friend S. W. Pike, St. Charles, Ill., cheaper than we can possibly grow them, or of almost any other florist.

HIGH-PRESSURE GARDENING, OR, RATHER, FRUIT-GROWING, IN COLORADO.

I thought I could top all of your articles on high-pressure fruit-growing; but the Nov. 1st number of GLEANINGS has proved too much for me. However, as my little story is simply one of peaches and apples, and grown only by ordinary culture, I will send it along.

Our situation is in a little valley on the western slope of the Rockies, known as the North Fork of the Gunnison. It is a small valley, with peaks running from 10,000 to 13,000 feet elevation on three sides of it, and snow in sight for ten months in the year, and but a few miles away. The altitude of the valley is 5500 feet, or over a mile above sea-level. It seems wonderfully adapted to fruit-raising, and we raise to perfection all the fruits grown in the United States except the tropical fruits.

♣ Last year a man here measured off an acre of peach-trees and kept account of it. He netted \$1000 from that acre. But perhaps a more convincing report is that from a woman who last year had $3\frac{1}{2}$ acres in peach-trees. The fruit from these was sold to one dealer for \$3000. This year she had four acres in bearing, and the same man gave \$2800 (or 50c a box) for the fruit, and she sold some \$200 worth besides.

These orchards received simply the ordinary care, but they are very favorably located. They are, of course, above the average, but the general run of orchards here produce results far ahead of any other locality I know of.

One little orchard of three to four acres of apple-trees produced a crop of apples that sold for \$1400 for the choice apples, leaving all the second-grade, which brought a few hundred more. I can't give any returns on winter apples for this year as yet, but some 30,000 boxes have been bought and shipped by a Chicago firm, for which they paid from 50c to 60c a box, they doing all the work except the picking, and also furnishing the boxes. Then they had to have them hauled 30 miles to the railroad. They consider the cost is from 80 to 90c a box on the cars; $2\frac{1}{2}$ boxes equal one barrel, and the same firm are buying apples in the East, they claim, for \$1.10 a barrel, so you see the quality is here.

I will try to get some figures about the apple crop later on, and let you know. H. L. JAMES.
Hotchkiss, Colo., Nov. 7.

Humbugs and Swindles.

"ANOTHER WARNING IN REGARD TO COM-POST PEDDLERS."

The above is the title of a bulletin issued by the North Carolina Experiment Station. They send it out because so many rascals are going about the country offering to sell recipes by which any farmer can manufacture the best fertilizer, as they claim, that costs only \$3.00 a ton. The price of this recipe is \$5.00. The bulletin tells how it is done, and gives the recipe in full.

Now, this illustrates once more what I have been laboring so hard for years to teach the general public. There are no valuable processes or recipes for doing any thing, hawked

about the country for a certain sum of money, say \$5.00 for something that is printed on a piece of paper not larger than a postal card. The whole thing is a humbug and a swindle. Our agricultural books and papers contain all the valuable information as soon as it has been proved to be valuable. The experiment stations of the United States are constantly devoting a large portion of their time to testing all these things as fast as they come up.

Another of these swindles is what is called "the farmer's compound fertilizer." It is a plan of composting all the manures made on the farm, with various chemicals. No doubt the stuff can be made for \$3.00 a ton or less, especially if the farmer does not count his time any thing while he is "fussing."

But this bulletin discusses all these plans and processes. It shows up their weak and absurd points, and then tells the farmer, free of charge, the most intelligent and up-to-date plan of composting and mixing his stable manures with peat, muck, straw, or soil. Market-gardeners and greenhouse men are already in the business of making valuable compost from every thing available—street-sweepings, muck from the swamp, leaves from the forest, etc. But these rascals that are stealing money from the farmers under the guise of being scientific are not even as well posted as the gardeners and florists in this business. When any such man comes around and wants \$5.00 or any other sum for such a secret, show him this, and then set the dog on him.

Once more: Why should anybody pay \$1.00 or \$5.00 for what is printed on a little bit of paper when the whole thing might be given, and, in fact, *is* given, in our agricultural papers that go to thousands of people? and instead of paying \$1.00 for what is printed on a little scrap of paper you get a great big valuable newspaper once a week, with thousands of such valuable items, for a whole year, for the dollar. The only trouble about the home paper is that it sometimes is inconsiderate enough to help push these schemes in their advertising columns.

OUR RELATIONS WITH CHINA.

We quote as follows from a writer in the *Rural New-Yorker*:

Our exclusion of Chinese subjects from residence here, while demanding entrance into China for all sorts of American enterprises, has aroused a deep resentment. . . . After exacting a reasonable compensation for the loss of American lives and property we should get out of China, and stay out until we are welcomed back, asking only such privileges as we are willing to accord the Chinese—that of merely trading between the ports of the respective countries.

I confess I have always wondered how we could demand freedom in traffic and travel on Chinese soil while we single out China alone among the nations, and forbid her people from setting foot on our soil. Yes, I have heard the matter explained, and I have listened to the reasons; but still I am not satisfied. If we wish and expect to be permitted to carry the gospel of Jesus Christ to China, and civilization with it, are we not in duty bound to practice a little more the teachings of the gospel in our treatment of the Chinese people who wish to come over here?